Detailed Project Report
Connecticut River
River Road
Middletown, Connecticut

Emergency Streambank Protection

February 1989

US Army Corps
of Engineers
New England Division

DETAILED PROJECT REPORT

EMERGENCY STREAMBANK PROTECTION

CONNECTICUT RIVER

RIVER ROAD

MIDDLETOWN, CONNECTICUT

FEBRUARY 1989

DETAILED PROJECT REPORT
RIVER ROAD
MIDDLETOWN, CONNECTICUT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF PLATES

ENCLOSURES

DETAILED PROJECT REPORT
RIVER ROAD
CONNECTICUT RIVER
MIDDLETOWN, CONNECTICUT

1. AUTHORIZATION

The following investigations have been accomplished under the special continuing authority contained in Section 14 of the 1946 Flood Control Act, as amended, to determine the need and feasibility of constructing emergency streambank protection along River Road in Middletown, Connecticut. Federal assistance in preventing further erosion in the River Road area was requested by Middletown's Municipal Development Director, William M. Kuehn, Jr. in a letter dated 20 November 1986.

Under the provisions of Section 14 authority, Federal construction funding is available for the protection of highways, bridges, public works and public use facilities from streambank erosion. Such work must be economically justified and advisable in the opinion of the Chief of Engineers.

2. DESCRIPTION OF AREA

The city of Middletown is located in Middlesex County, in the lower Connecticut River Valley, in south-central Connecticut. Middletown is approximately 15 miles south of Hartford and 20 miles northeast of New Haven. Middletown is bordered to the north by Cromwell, to the south by Durham and Higganum, to the west by Middlefield and Meriden, and to the east by the Connecticut River (see Plate 1).

3. PROBLEM DESCRIPTION

The primary streambank erosion area is located along the Connecticut River in the vicinity of River Road at the intersection with Eastern Drive, approximately 6,500 feet downstream of the Arrigoni (Route 66) Bridge. The erosion area consists of approximately 420 linear feet of riverbank (see Plate 2). The road surface ranges from 10 to 18 feet above the riverbed. The slope of the riverbank varies from a 1 vertical on 3 horizontal along the lower sections to a 1 vertical on 1 horizontal at higher sections. Along certain areas of River Road, erosion has undermined the shoulder causing sections of the guardrail to fail. There is a 2-foot diameter water main under the road which supplies Middletown with water. A pump station is located at the intersection of Eastern Drive and River Road.

4. HYDROLOGIC & HYDRAULIC ASSESSMENT

The Connecticut River, which forms the eastern boundary of Middletown, extends from the Province of Quebec, Canada, in a southerly direction through Middletown. Of the total drainage basin of 11,265 square miles, 10,775 square miles lie north of Middletown. Middletown is located 31 miles north of the river's mouth and is subject to some tidal influence; however, a much greater variation in water level takes place as a result of changing conditions in the river's natural flow.

The most recent flooding event occurred during the period of March 31- April 8, 1987 in which a pair of intense rainstorms hit most of New England. These two storms, augmented by snowmelt in the mountains and northern areas, resulted in the most widespread flooding in about 50 years. The storms created two separate and significant flood peaks, especially in southern and central regions.

Discharge data from the U.S. Geological Survey gage situated at Bodkin Rock (D.A. = 10,877 sq. miles), located 6300 feet downstream from the project site, was used to develop discharge-frequency relationships for this reach of the Connecticut River. The 10, 25, 50 and 100-year discharges and elevations are listed below:

Flood Event (yrs.)	Estimated Peak Discharge (cfs)	Elevation (ft., NGVD)
10	155,000	15.7
25	172,000	17.4
50	205,000	20.5
100	236,000	22.3

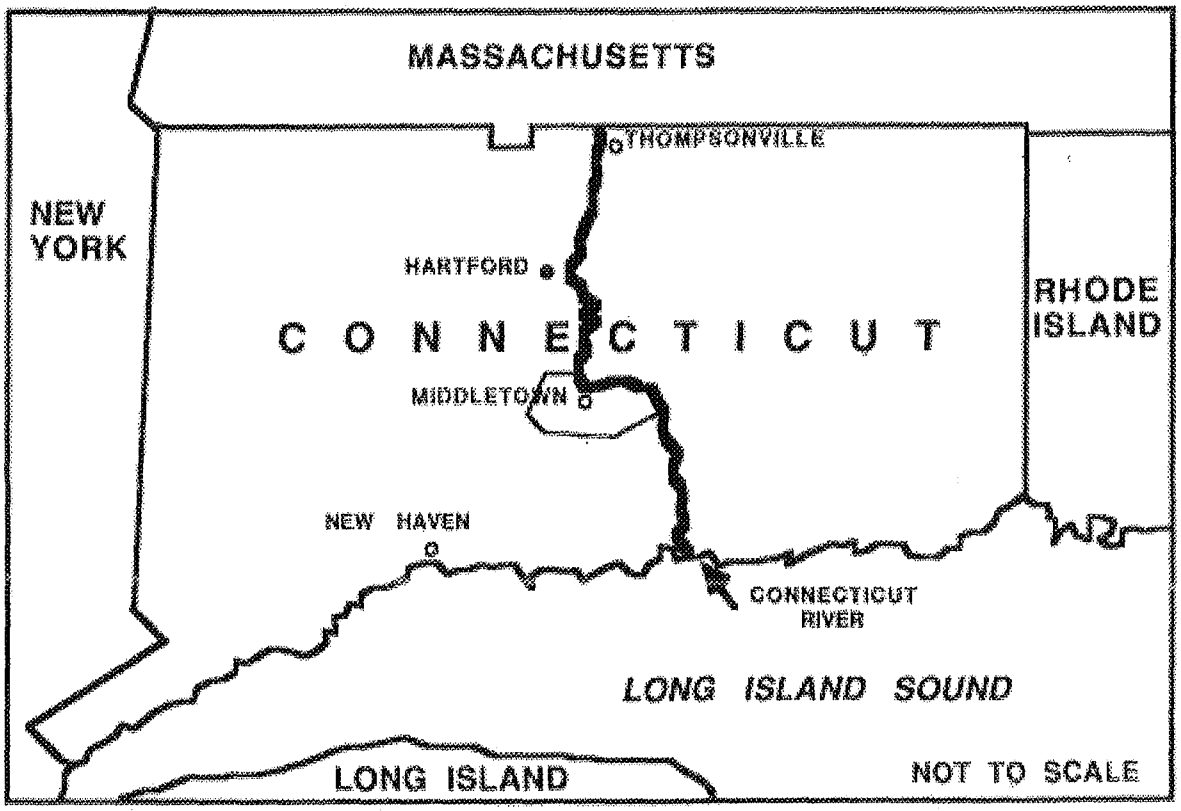
The maximum recorded discharge at the Bodkin Rock gage was 186,000 cfs on 2 June 1984. Flood control measures in Middletown have been limited to minor improvements; however, the lower reaches of all streams in Middletown are influenced by backwater conditions in the Connecticut River. Over the last three decades, 16 flood control reservoirs have been constructed in the Connecticut River watershed. A recurring 1936 event would produce a discharge of 206,100 cfs, compared with the 267,500 cfs at that time, a reduction of approximately 23 percent.

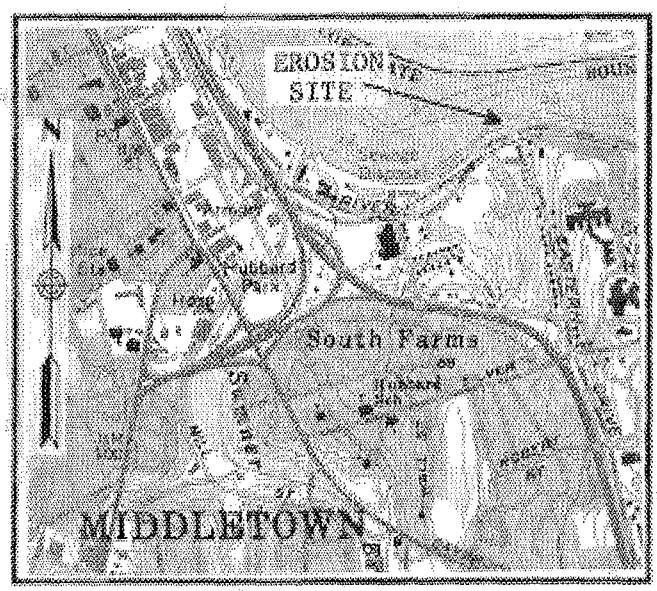
The climate of Middletown is typical of southern New England and, being near the coast and having relatively low elevations, Middletown escapes the extremes of cold and depths of snow cover experienced in northern New England. The area is exposed to coastal storms, which occasional attain hurricane intensity and are ussually accompanied by heavy precipitation.

5. PLAN FORMULATION

Without Project Condition - If no action is taken to protect the riverbank in the area, erosion will continue, causing the eventual failure of the roadway, the pump station and the water line. Failure of both the pump station and the water main would require the city of Middletown to administer emergency measures in maintaining the water supply for the area. Losses and disruption would include fire protection for the city, the transfer of potable water to the city, and disruption to many of the city's businesses.

This Section 14 investigation is consistent with Middletown's Riverfront Development Project which has been ongoing since August 1973. The Riverfront Development Plan is a revitalization process of Middletown's Connecticut River shoreline. The project extends along a four mile linear reach of Middletown's riverfront from Harborpark extending downstream along River Road. The plan includes three parks interconnected with recreational walkways. The erosion site is located within this reach. The upstream park





EROSION LOCATION

SECTION 14
MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER

LOCATION MAP

JANUARY 1989

PLATE 1

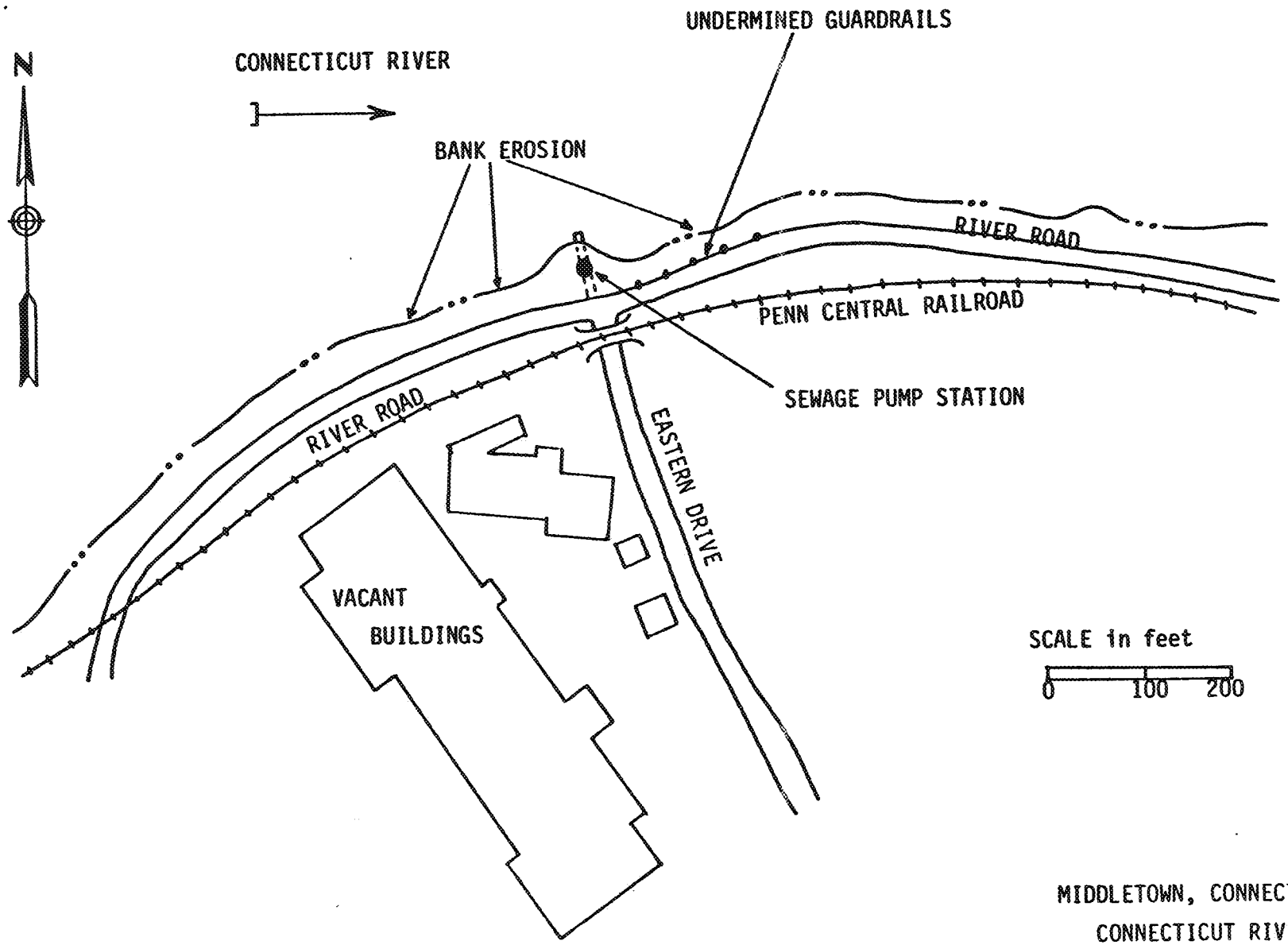


PLATE 2

MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER
RIVER ROAD AREA

has already been developed, the city owns the land for the middle park and are in the process of obtaining the land for the lower park from the State of Connecticut. The main transportation access which parallels the Connecticut River within the three parks is River Road. Its close proximity to the river limits development potential and its location within the flood-prone areas requires continuing maintenance due to erosion of the streambanks. The road is heavily traveled, particularly during rush hours (estimated 3,000 vehicles per day). River Road is integral to the Riverfront Development Project and is an important link in the overall plan. Any construction work in this reach must be designed to be consistent with other features of the Project. rotection systems involving rubble structures were not determined compatible with the Riverfront Development Project and not considered as implementable.

Alternatives Investigated - During the reconnaissance study, two alternative courses of action were investigated to determine the best solution to the erosion problem. The alternatives are as follows:

(1) Relocate River Road

(2) Construct Streambank Protection

The feasibility and advisability of each alternative was evaluated as follows:

(1) Relocate River Road - The existing road runs parallel to the Connecticut River and is situated between the riverbank and the Conrail tracks. It currently provides an access road to several businesses located on Eastern Drive and River Road. River Road also provides access to the wellfield facility. Due to the limited area between the Conrail tracks and the steep incline immediately south of the tracks (see Plate 3), and the high cost of excavating such a steep slope, it was determined unfeasible to relocate the road.

(2) Provide Riverbank Protection - Several possible methods of protecting the roadway were investigated. A timber crib, a precast modular retaining wall, stone revetment and a grid block revetment were all potential structural solutions which were considered for protection of area.

A rock-filled timber crib wall was considered to provide protection to the roadway. Although such a plan would provide protection to the area, the cost of the timber crib alternative was estimated to be $379,000. This alternative was considered inappropriate due to the high cost.

A precast modular concrete retaining wall with stone toe protection would provide the essential protection to the erosion area. This alternative would require minimum maintenance. The cost of constructing a modular concrete retaining wall along the area was determined to be $445,000. Due to the high cost, this alternative was eliminated from further study

Stone slope revetment could provide the protection to the erosion area. However, due to Middletown's Riverfront Development Project along the Connecticut River, rock revetment would not compliment other Project features in this area and thus considered as non-implementable.

Grid block revetment, when designed to provide adequate protection to the roadway from erosion, would require a 6-inch layer of grid block with a rock toe. The grid block revetment alternative would be aesthetically sound and require minimum maintenance throughout its project life. This alternative also compliments with the Riverfront Development Plan for the area. The cost of this solution is determined to be $309,000, one of the lowest of all potential structural solutions and is the selected plan for this erosion area.

6. THE SELECTED PLAN

Studies indicate that the placement of a grid block system of slope protection at the River Road area is the most cost effective and viable erosion control method to prevent future streambank erosion at the proposed site.

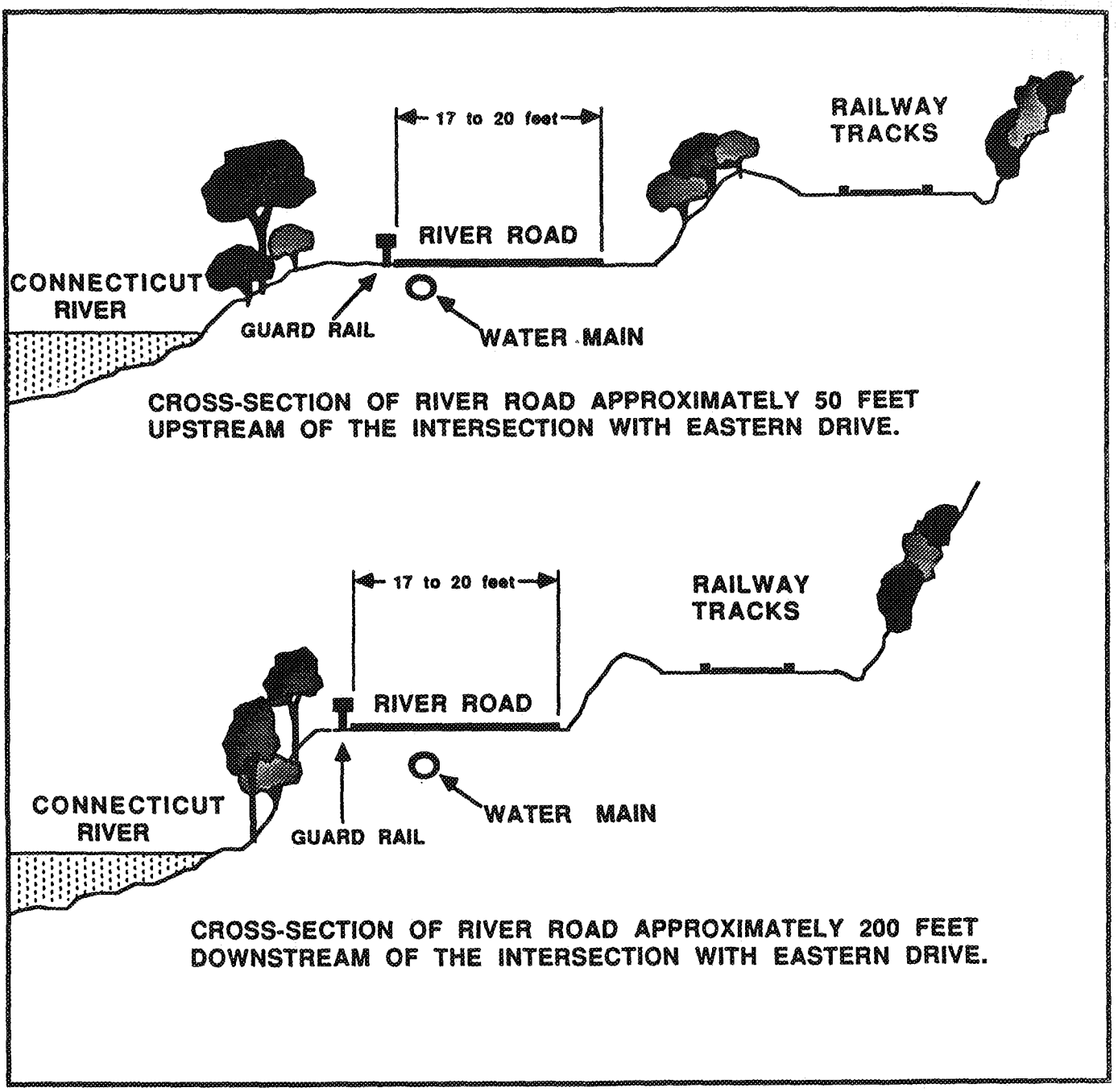
The selected plan at the River Road area calls for construction of a layer of 6-inch grid block underlain by a 1-foot layer of gravel bedding placed on a 1 vertical on 2 horizontal slope (see Plates 4 & 5 - Typical Grid Block Section). The revetment would be approximately 420 feet in length beginning at a point 70 feet upstream of Eastern Drive. The height of the protection would range from 10 to 18 feet above the mean low water level of the Connecticut River.

Riprap toe protection for the distressed streambank was sized to resist hydraulic forces associated with the 50-year discharge. Side slopes of 2 Horizontal to 1 Vertical were assumed. For a flow depth of 31 feet and an estimated gradient of 5.8 feet per mile, a minimum D50 stone size of 1.0 feet was determined to resist tractive forces. During a 50-year flood event, the roadway would be overtopped, but due to the design criteria, the protection would withstand the overtopping and fulfill its intend function of providing streambank protection to the roadway.

Therefore, the recommended plan for this site would provide a 50-year level of protection for the Connecticut River streambank.

7. ESTIMATES OF FIRST COSTS AND ANNUAL CHARGES

Estimate of first cost and annual charges for the proposed project at the River Road is reported in Table 1. An estimate of $2,000 is included as a non-Federal responsibility for obtaining lands and easements for project construction. Unit prices are based on similar work performed in this area. Cost sharing requirements include a 25 percent contribution of project costs by non-Federal interests, including necessary lands, easements and right-of-ways. With the total project first cost estimated at $309,000, the non-Federal share of the first cost is currently estimated at $77,300, subject to change depending on the actual construction bid price for the project. Total annual cost of $33,100 is computed using a project life of 25 years and an interest rate of 8-7/8 percent with an annual operation and maintenance cost estimated at $2,000.

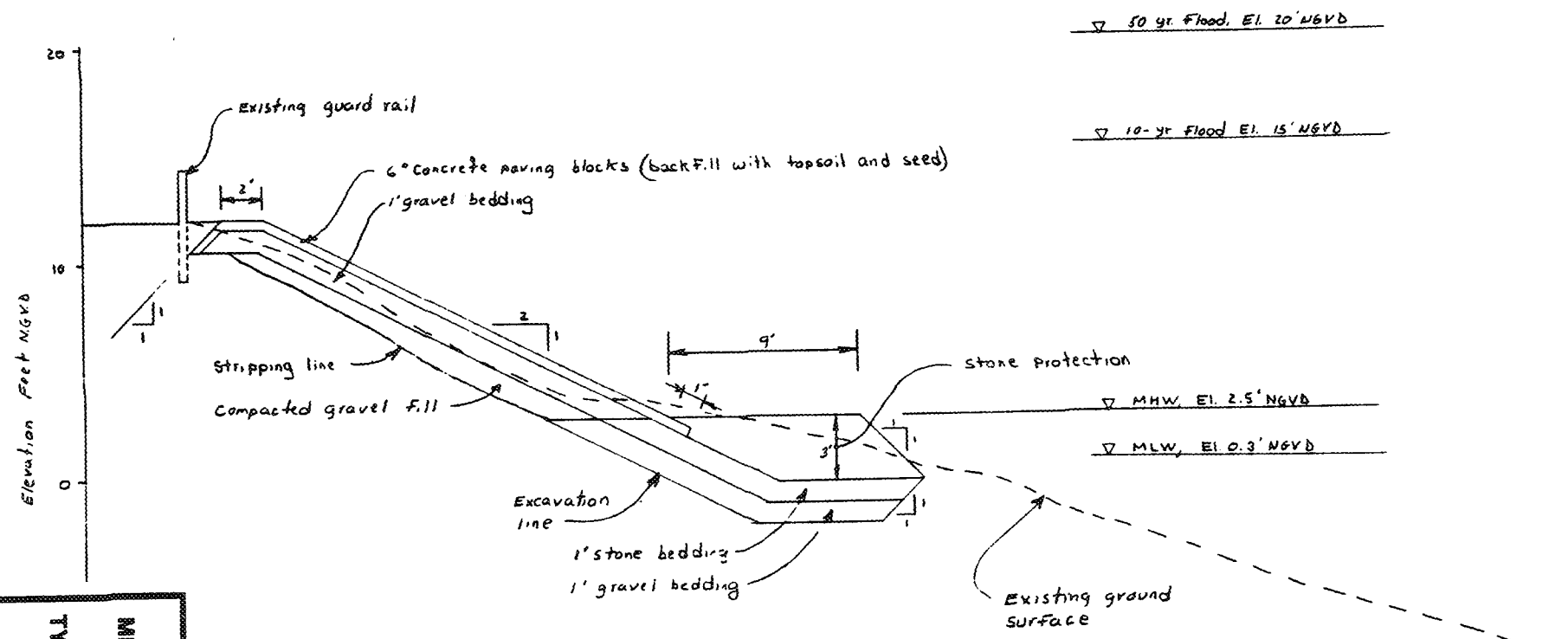


SECTION 14
MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER

RIVER ROAD PROFILE

JANUARY 1989 NOT TO SCALE

PLATE 3



TYPICAL PAVING BLOCK SECTION

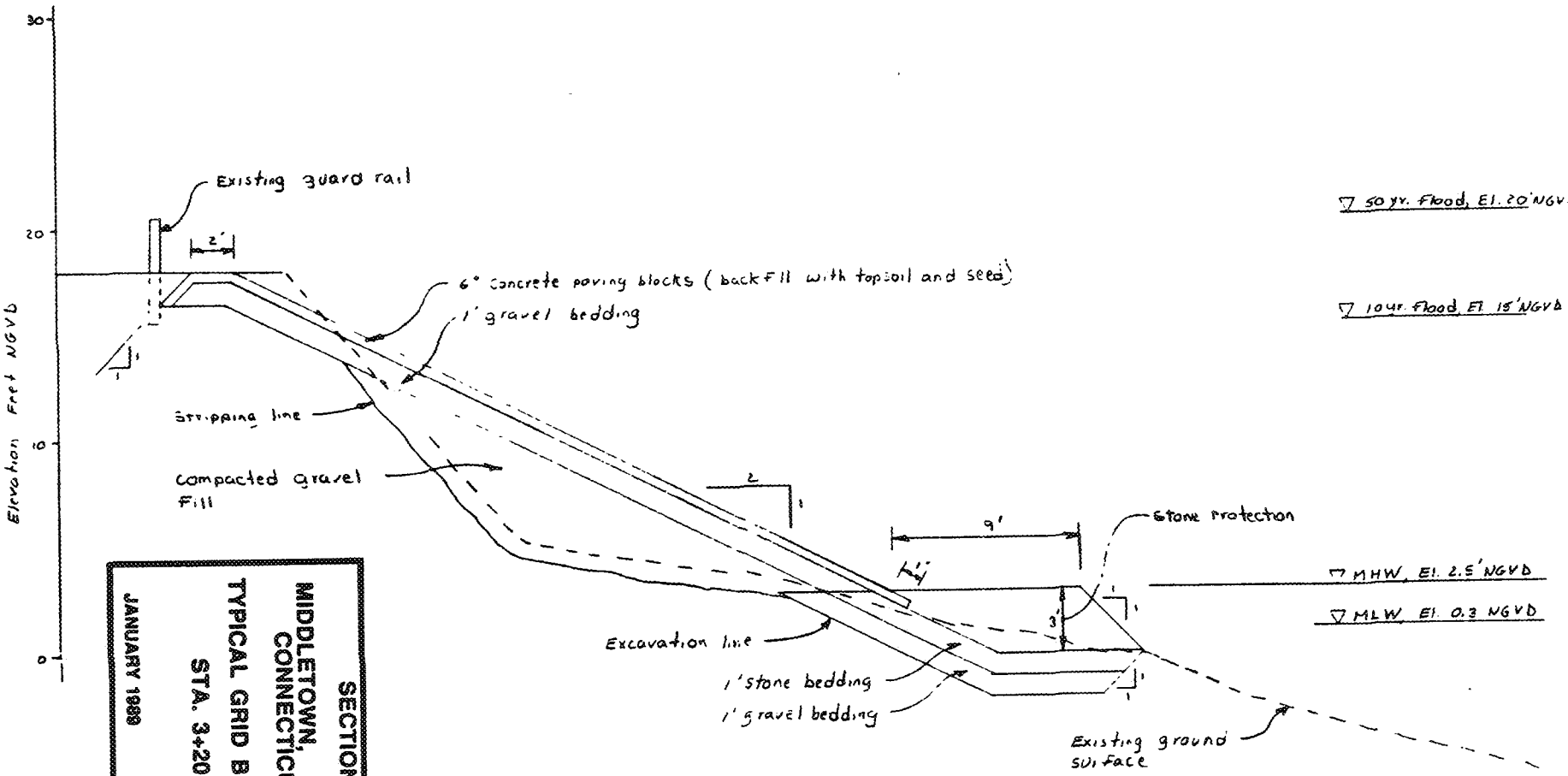
REACH 1, Sta. 0+00 to 3+20

SCALE: 1" = 5'

Connecticut River
Middletown, CT

Prepared by: RF, GEB 10 Nov. 88

SECTION 14
MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER
TYPICAL GRID BLOCK SECTION
STA. 0+00 TO 3+20
JANUARY 1989
PLATE 4



TYPICAL PAVING BLOCK SECTION

REACH 1, sta. 3+20 to 4+20

SCALE 1"=5'

Connecticut River
Middletown, CT

Prepared by: AF, GEB 10 Nov. 88

SECTION 14
MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER
TYPICAL GRID BLOCK SECTION
STA. 3+20 TO 4+20
JANUARY 1989
PLATE 5

TABLE 1

PRELIMINARY TOTAL COSTS AND ANNUAL CHARGES
EMERGENCY STREAMBANK PROTECTION
RIVER ROAD, MIDDLETOWN, CONNECTICUT
(January 1988 Price Level)

Item	Quantity	Unit	Unit Price	Cost
Grid Block	1370	S.Y.	$100	$ 137,000
Stripping	370	C.Y.	8	3,000
Excavation	260	C.Y.	8	2,100
Compacted Random Fill	360	C.Y.	20	7,200
Gravel Bedding	600	C.Y.	20	12,000
Stone Bedding	220	C.Y.	35	7,700
Stone Protection	350	C.Y.	50	17,500
Topsoil & Seed	1300	S.Y.	5	6,500
			SUBTOTAL	$ 193,000
			Contingencies	48,000
			TOTAL CONSTRUCTION COST	$ 241,000
			Engineering & Design	37,000
			Supervision & Administration	29,000
			Lands, Easements & Rights-of-Way	2,000
			TOTAL PROJECT FIRST COST	$ 309,000 *

* Does not include pre-authorization costs of $27,500

ANNUAL COST

Streambank Protection Project Amortization (25-year @ 8-7/8%)	$ 31,100
Operation & Maintenance	2,000
TOTAL ANNUAL COST	$ 33,100

NON-FEDERAL COSTS

Cash - 5% of Total Project Cost	$ 15,500
Lands, Easements & Rights-of-Way	2,000
Additional Cash Required	59,800
TOTAL NON-FEDERAL COST (25%)	$ 77,300
TOTAL FEDERAL COST (75%)	$ 231,700

8. ESTIMATES OF BENEFITS AND BENEFIT-COST RATIO

Benefits due to project construction are based on comparison of the "with" and "without" project condition. Should the embankment be left as is, erosion will continue, leading to undermining and failure of the roadway.

A benefit evaluation has been prepared for the River Road area. Benefits as derived for the selected project are those recurring costs for temporary embankment repair, road repairs, utility repairs and traffic detours which would be avoided by preventing eventual road damage with construction of permanent erosion protection. Temporary repairs and associated costs were estimated to be $115,000 as shown in Table 2. Benefit estimates consist of temporary repair to stabilize the eroded bank with dumped angular rock protection, as well as repair of the roadway to a usable and passable condition in the event of road failure.

TABLE 2

DERIVATION OF BENEFITS
RIVER ROAD
MIDDLETOWN, CONNECTICUT

Preventable Damages Item	Estimated Temporary Repair Cost
A. Bank Stabilization	$57,300
B. Road Repair	3,600
C. Utility Poles and Pipeline Repairs	14,600
D. Pump Station	35,000
E. Detour Costs	200
F. Emergency Crews Costs	4,300
TOTAL PREVENTABLE DAMAGES	$115,000

ANNUAL BENEFITS

Temporary Bank Stabilization and Associated Costs
(3-year recurrence interval, 0.39 x $115,000 = $45,000)

TOTAL ANNUAL BENEFIT $45,000

Repair work to the embankment and road represents emergency type construction and would only be a temporary fix. Construction repair is done on an emergency need basis and only where a direct threat to the roadway exists. Temporary repair does not provide a permanent solution to the erosion problem.

The emergency level construction done on the River Road embankment is expected to last about 3 years before erosive action of the Connecticut River undermines the emergency protection and further erodes unprotected banks, requiring more extensive emergency repairs. Under these circumstances and during the 25-year life of the recommended plan, erosion repair would have to be done 8 times under a without project condition.

Amortized over a 3-year life at the applicable interest rate of 8-7/8, annual benefits resulting from construction of an erosion control project, equated to the cost of avoiding recurring damages associated with the without project condition, are estimated at $45,000.

For determination of the plan that maximizes net National Economic Development benefits (the NED plan) and compliments the Middletown's Riverfront Development Plan, Table 3 compares the grid block's annual cost with the rock-filled timber crib wall, the precast modular concrete retaining wall and the stone slope revetments' annual costs.

TABLE 3

COMPARISON BETWEEN THE SELECTED PLAN AND OTHER ALTERNATIVES

Plan	Annual Cost	Annual Benefits	Net Benefits
Grid Blocks	$33,000	$45,000	$12,000
Timbered Crib	$38,200	$45,000	$6,800
Concrete Wall	$44,800	$45,000	$200

The annual cost of the grid block plan is $33,000 compared with the annual benefit of $45,000, the ratio of benefits-to-costs is 1.4 to 1.0 and the net benefits are equal to $12,000.

9. ENVIRONMENTAL CONSIDERATIONS

No significant environmental impacts are expected to occur during or after construction of the erosion protection project. Construction activities will probably cause increased turbidity in the Connecticut River for a short period, but should have no permanent effect on water quality. Efforts will be made to minimize sediment inputs into the Connecticut River caused by construction activities by use of erosion control measures such as hay bales. Completed coordination with relevant State and Federal agencies indicated no significant impact on fish and wildlife habitat is expected due to project construction. Approximately 150 trees will be removed from the area on and around the failing riverbank. However, most of these trees are already leaning and will fall into the river in the near future. Construction activities will result in loss of some bird nesting habitat.

10. REQUIREMENTS OF LOCAL COOPERATION

The State of Connecticut is the non-Federal sponsor for the proposed project. The January 26, 1989 letter from Mr. Charles E. Berger, Jr., Acting Assistant Director, Department of Environmental Protection indicated that the State supports the project (see Eclosure 1). Honorable Sebastian J. Garafalo, Mayor of Middletown, by virtue of a letter dated September 9, 1988 (see Enclosure 1) also supports the concept of protection of River Road.

A draft copy of the Local Cooperation Agreement (LCA) is enclosed (see Enclosure 2). The LCA has been negotiated and is understood by the local sponsor. The final signed LCA will be obtained by the Federal Government prior to requesting funds for construction of an

11. CONCLUSIONS

This study indicates that construction of a precast concrete grid block protection on the slope will provide erosion control along the Connecticut River streambank in order to prevent further undermining and failure of River Road. The selected plan provides a technically sound solution to the problem and is acceptable to local interests. This recommendation provides an erosion control project complete-within-itself. The selected plan is the NED plan, as it maximizes net benefits. The total non-Federal cash required for construction of this project is $ 75,300. Because the State of Connecticut is the local sponsor, it is reasonable to expect that ample funds will be available to satisfy the non-Federal financial obligation for the project.

12. RECOMMENDATIONS

I recommend that this report be approved as the basis for preparation of plans and specifications for construction of the selected plan described herein under authority contained in Section 14 of the 1946 Flood Control Act, as amended. It is further requested that the New England Division, Division Engineer be designated the authority to approve construction plans and specifications.

The recommendations contained reflect the information available at this time and current Departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulation of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted for authorization and/or implementation funding. However, prior to transmittal, the sponsor, the state, the interested Federal agencies, and other parties will be advised of any modifcations and will be afforded an opportunity to comment further.

17 Feb 89
Date

Daniel M. Wilson
Colonel, Corps of Engineers
Division Engineer

13. ACKNOWLEDGEMENTS

This report was completed by the New England Division Army Corps of Engineers, under the general direction of Colonel Daniel M. Wilson, Division Engineer. It was prepared by Mr. Robert Martin, Project Manager, under the supervision of Mr. F. William Swaine, Chief Project Development Section and Mr. Joseph L. Ignazio, Chief Planning Division.

Members of the study team include:

Mr. Michael Tuttle	Plan Formulation Branch
Ms. Paula Morin	Plan Formulation Branch
Mr. Michael Penko	Impact Analysis Branch
Mr. Anthony Firicano	Geotechnical Engineering Branch
Mr. Wayne Johnson	Engineering Design Branch
Mr. Jon Szarek	Water Control Branch

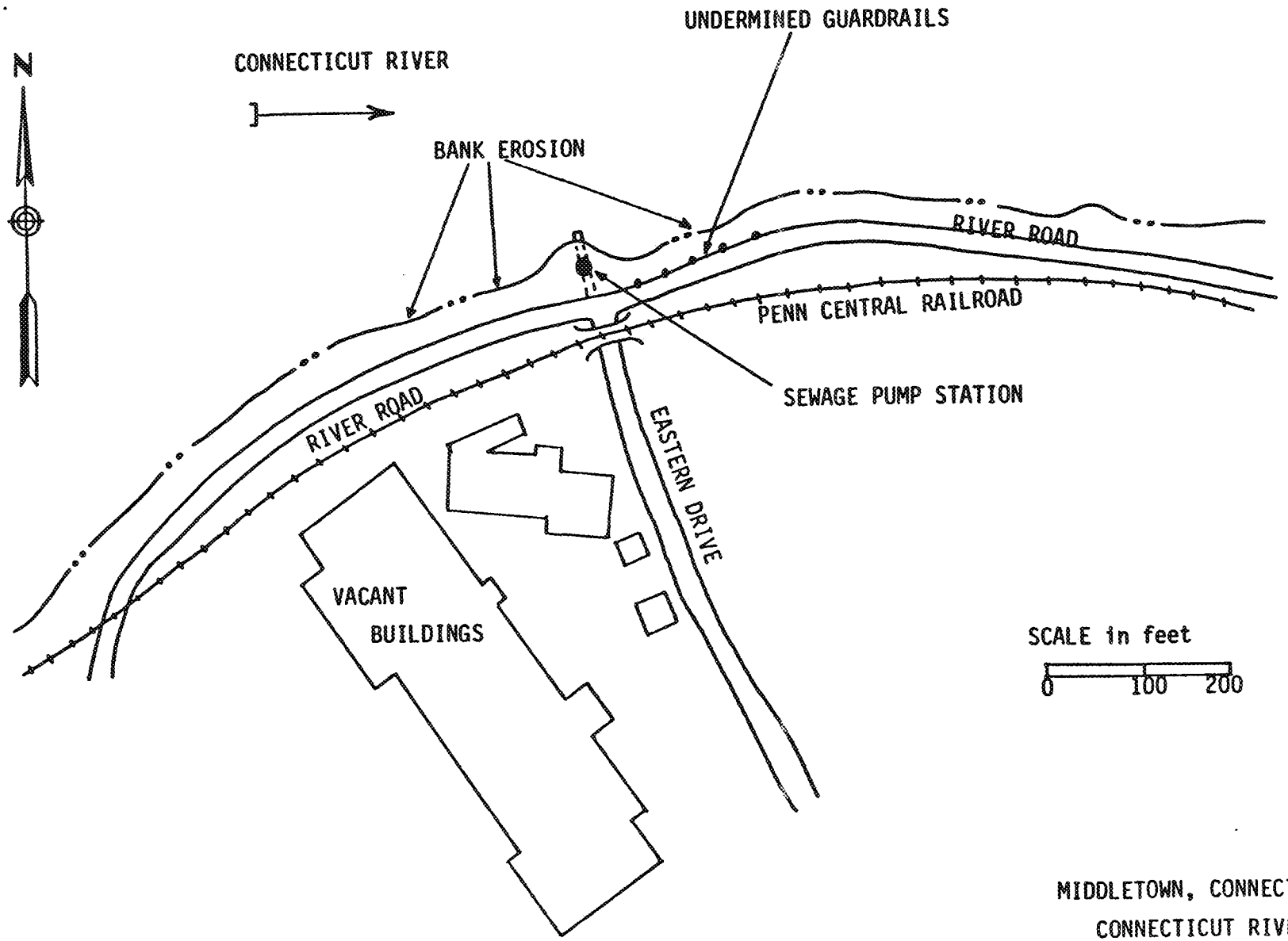


PLATE 2

MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER
RIVER ROAD AREA

ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL ASSESSMENT

Finding of No Significant Impact

and

Section 404(b)(1) Evaluation

Section 14

Emergency Streambank Protection

MIDDLETOWN, CONNECTICUT

Prepared by:

Michael Penko

Biologist

November 1988

New England Division
U.S. Army Corps of Engineers
Waltham, Massachusetts

TABLE OF CONTENTS

SECTION 404(b)(1) EVALUATION

FINDING OF NO SIGNIFICANT IMPACT.

Page Number

LIST OF FIGURES

LIST OF TABLES

I. INTRODUCTION

A. Purpose and Need

This report provides an assessment of the environmental affects of a proposed emergency streambank protection project designed to stabilize a section of riverbank along the Connecticut River, in Middletown, Connecticut (Plate 1). Streambank erosion at the site is threatening a public highway, a sewage pump station, and an underground water main (Plates 2 and 3).

B. Project Authority

This report was prepared under the special continuing authority contained in section 14 of the 1946 Flood Control Act (as amended). Section 14 allows the Corps of Engineers to participate in the planning and construction of economically justified streambank erosion control projects in situations where public facilities are threatened.

II. PROJECT DESCRIPTION

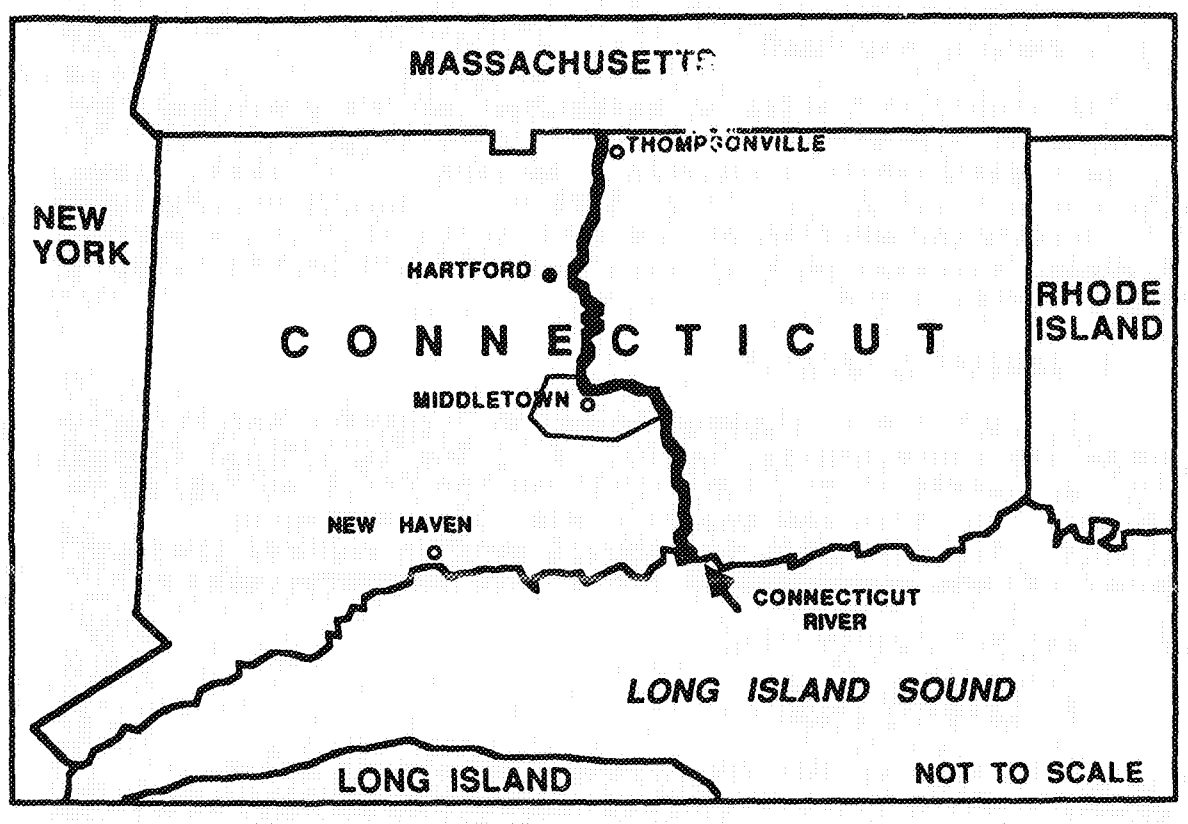
A. Selected Plan

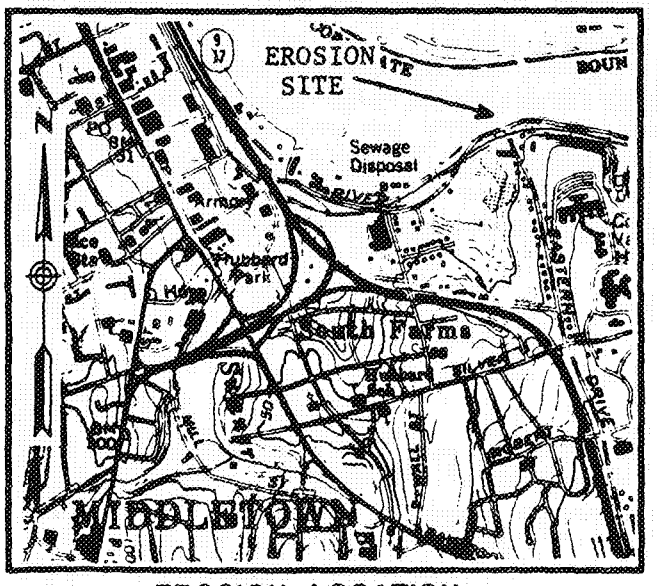
Plans call for the construction of a grid block revetment with stone toe along approximately 420 linear feet of riverbank (see Plate 2, and the draft DPR). The existing streambank would be cleared of vegetation and graded to a 1 horizontal to 2 vertical slope. In areas where the existing slope is steep, gravel fill would be placed to establish the required 1:2 slope. The stone toe would consist of gravel bedding overlain by 12" of stone bedding and a 3' layer of coarse stone. The toe would extend below mean low water level along approximately 100 feet of the revetment. Protection above the stone toe would consist of 6-inch grid block underlain by gravel bedding. Grid blocks would be covered with six inches of topsoil, seeded, and mulched. Construction is expected to occur during a three month period in late summer or early fall.

B. Alternatives

1. No Action

If no action is taken to stabilize the riverbank, erosion will continue, and eventually result in the loss of a roadway, water main, and sewage pumping station. Based on these projected impacts, the no action alternative was considered unacceptable.





EROSION LOCATION

SECTION 14

MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER

LOCATION MAP

JANUARY 1989

PLATE 1

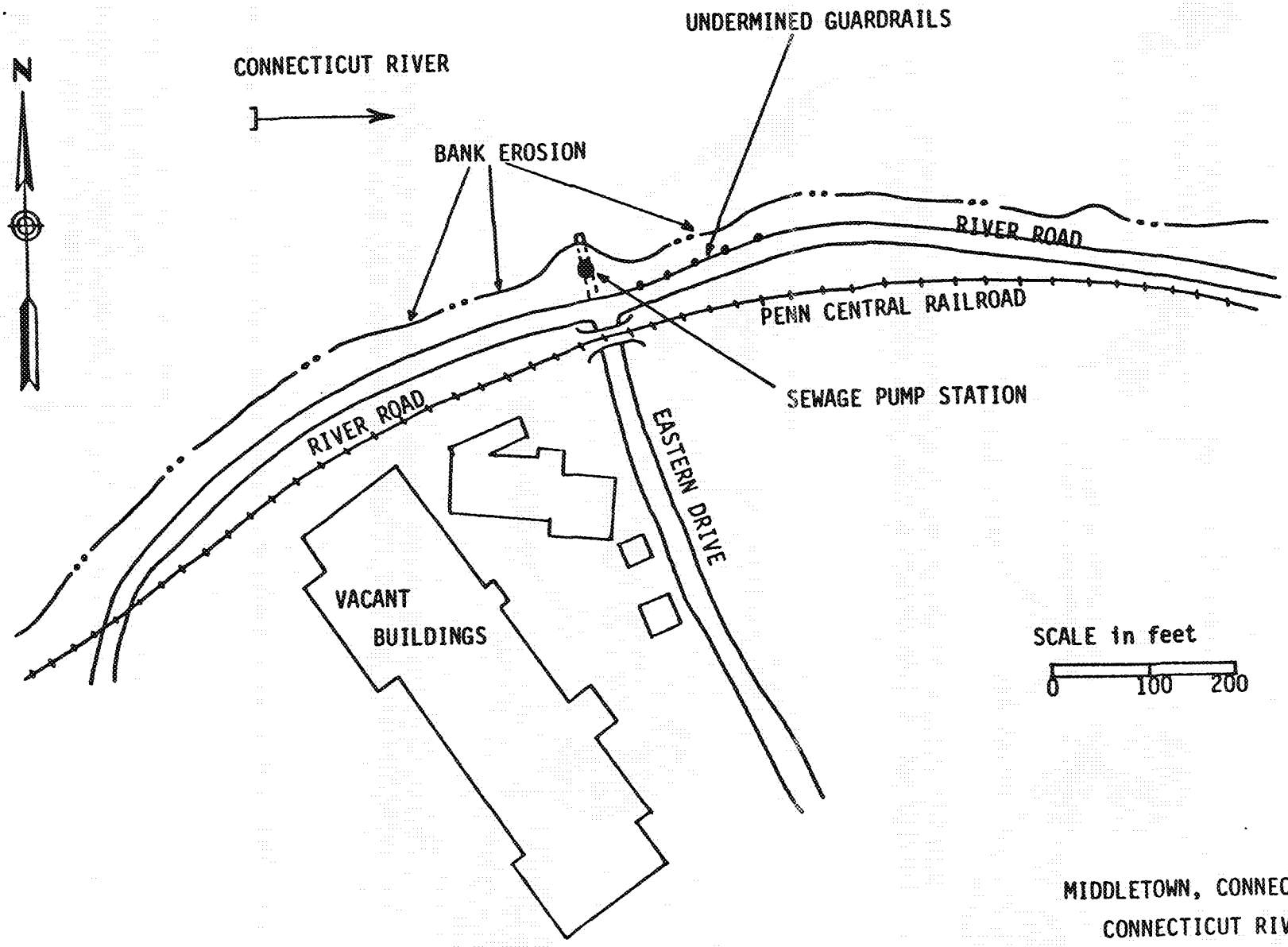
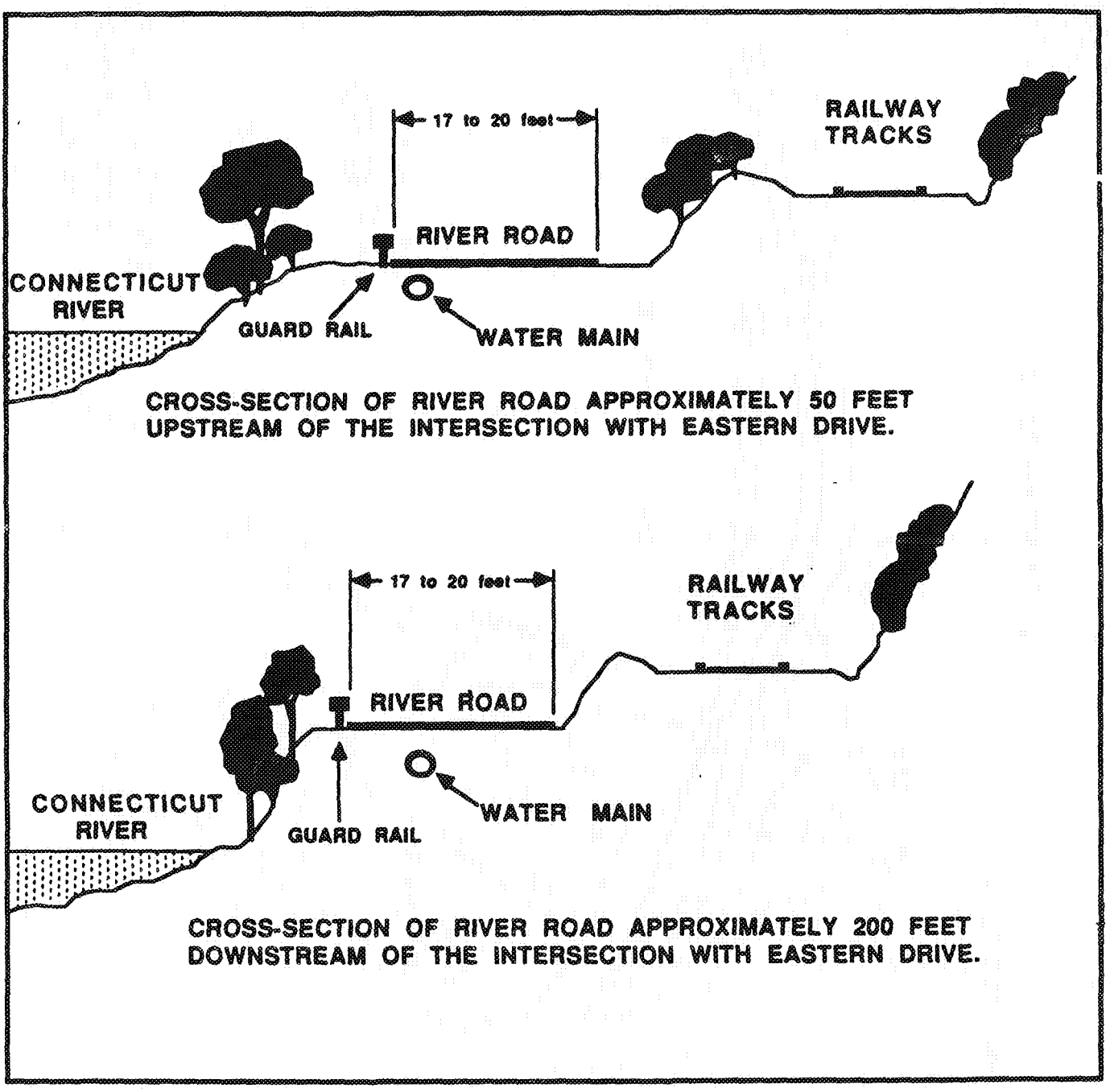


PLATE 2

MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER
RIVER ROAD AREA



CROSS-SECTION OF RIVER ROAD APPROXIMATELY 50 FEET UPSTREAM OF THE INTERSECTION WITH EASTERN DRIVE.

CROSS-SECTION OF RIVER ROAD APPROXIMATELY 200 FEET DOWNSTREAM OF THE INTERSECTION WITH EASTERN DRIVE.

SECTION 14
MIDDLETOWN, CONNECTICUT
CONNECTICUT RIVER

RIVER ROAD PROFILE

JANUARY 1989 NOT TO SCALE

PLATE 3

2. Relocation of River Road

The existing road is situated between the riverbank and a railroad bed (Plate 3). Due to the limited area between the railroad bed and road, and the steep incline on the opposite side of the tracks, relocation of the road is not feasible.

3. Alternative Protection Methods

Several other options for stabilizing the streambank were considered. Two alternatives, a rock-filled timber crib, and a precast modular concrete retaining wall, were rejected because of their high cost relative to grid block revetment. A third option, sheet pilling wall, was rejected because detailed subsurface geological information needed to evaluate its feasibility was lacking.

III. ENVIRONMENTAL RESOURCES

A. General Setting

The Connecticut River is the largest and longest river in New England. Middletown is located approximately 35 miles upstream of the river's outflow into Long Island Sound. The drainage area of the river at Middletown is 10,887 square miles (Thomas et al., 1983). The river is approximately 600 to 1100 feet wide and up to 35 feet deep in the vicinity of the project area.

The flow rate of the Connecticut River at Middletown is highly variable and is tidally influenced (Thomas et al., 1983). Mean tidal range at Portland, a few miles upstream from Middletown is 2.2 feet (U.S.D.C., 1985). Minimum flows occur during late summer and early fall. Peak flows occur during the spring. Maximum recorded discharge at Middletown during the 1984 spring flood (a 75 year event) was 186,000 cfs (cubic feet per second).

Middletown has a population of 39,040 (1980). The river supports commercial traffic in Middletown, and upstream as far as Hartford, Connecticut.

B. Aquatic and Riparian Habitat

At the project area, the nearshore substrate of the Connecticut River consists of mud and rock (small rocks to large boulders). In some locations the existing riverbank is severely eroded and undercut. Portions of the riverbank appear to have been riprapped in the past.

C. Water Quality

The water quality of the Connecticut River in the vicinity of Middletown is classified as "SC" with a goal of "SB" (Connecticut DEP, 1983). The river is not

considered suitable for bathing, but is suitable for fish and wildlife habitat, and has good aesthetic value. Failure to meet Class B standards is largely a result of periodic combined sewer overflows which result in the discharge of untreated sewage into the river.

Based on U.S.G.S. data collected monthly between October of 1982 and September of 1985, estimated suspended solids concentration (total - dissolved solids) in the river at Middletown averages less than 15 mg/l. Suspended solid concentrations of ca. 10 ppm are typical for the Connecticut River, except during high flow events when levels can be much greater (Tomey 1986). Turbidity ranged between 0.5 and 5.0 Nephelometric turbidity units. Turbidity was generally highest in winter and early spring, and lowest in summer.

D. Aquatic Resources

1. Aquatic Invertebrates

No specific information is available concerning the aquatic invertebrates present in the project area. Silty and rocky habitats in the Connecticut River approximately five to ten miles downstream from Middletown support various invertebrates, including aquatic insects, crustaceans, molluscs, and annelids (Massengill, 1976).

2. Fish

The lower Connecticut River supports more than 50 species of resident and anadromous fish (Whitworth et al., 1968). Based on surveys of juvenile and adults between 1965 and 1972 (Marcy, 1976 a.) white perch, spotted shiner, brown bullhead, white catfish, and the golden shiner are the most abundant resident species. Common anadromous species include blueback hering, alewife, and American shad. Rainbow trout and Atlantic salmon are also present. Young atlantic menhanden are abundant as summer migrants in the lower Connecticut River.

The project area is reportedly a popular fishing spot (see correspondence from David Fox, Connecticut D.E.P.). Fish commonly caught by anglers near Haddam (10 miles downstream of Middletown) include white perch, brown bullhead, and white catfish (Marcy, 1976 a.). American shad, blueback herring and white perch support a viable commercial fishery in the river. Middlessex County is home port to the majority of commercial shad fisherman (Blake and Smith, 1984).

Spawning of anadromous species occurs from March through July. Exact timing of spawning is dependant on water temperature and flow. Spawning of the common resident species occurs from early spring until mid summer. White perch, the principal resident species, spawns from May until June. A large percentage of total egg production in the river occurs above Middletown (Marcy, 1976 b.). Eggs

Table 1: Concentrations of fish eggs and larvae in the Connecticut River near Middletown.

Month	Eggs/tow[b]	Larvae/tow
April	<1	< 1
May	30	32
June	96	454
July	4	101
August	0	6
September	-	0

a adapted from Marcy (1976 b.)

b based on biweekly tows taken in 1965-1969 at river stations (n=5) within 10 miles upstream or downstream of Middletown

Table 2: Birds nesting along the Connecticut River in the vicinity of project area.

Species	Nesting Microhabitat					
	BS	S	H	SH	T	DT
Killdeer	x	x				
Mute swan		x				
Mallard		x				
Spotted sandpiper		x	x			
Common yellowthroat		x	x	x		
Song Sparrow		x	x	x		
Gray catbird				x		
Red-winged blackbird			x	x	x	
Brown-headed cowbird		x	x	x	x	x
Green heron				x	x	
American robin				x	x	
Cedar waxwing				x	x	
Eastern kingbird				x	x	
Blue jay				x	x	
Yellow warbler				x	x	
Northern cardinal				x	x	
American crow					x	
Northern oriole					x	
Common grackle				x	x	x
Black-capped chickadee						x
Tufted titmouse						x
European Starling						x
Common flicker						x
Downy woodpecker						x
Wood duck						x

a. adapted from field survey data (1982-1985) of the Connecticut Audobon Society Breeding Bird Atlas project (see 10-30-87 Conn. D.E.P. letter)

b. BS: bare soil
S: soil with leaf litter,debris, and grasses
H: herbaceous vegetation
SH: shrubs
T: trees
DT: dead trees or snags

and planktonic larvae, however, are carried downstream, past Middletown, and become concentrated between Higganum, and Essex. In the vicinity of Middletown, planktonic fish eggs are most abundant during May and June. Planktonic larvae are most abundant during June and July (Table 1).

E. Riparian Resources

1. Vegetation

The existing riverbank within the project area supports approximately 150 large trees. Predominate taxa include maple, birch, oak, and willow. Approximately one-third of the trees have been undermined by erosion and are in immediate danger of falling into the river. The understory is dominated by grasses and shrubs.

2. Wildlife

Field data from the Connecticut Breeding Bird Atlas Survey indicates that riparian habitat in the vicinity of the project area provides nesting sites for a variety of birds (Table 2). Most of these species (ca. 70 %) require either trees, shrubs, or dead trees (or snags) for nesting.

Field observations in early April of 1987 noted house sparrow, crow, starling, herring gull, common merganser, mallards, and chickadee.

No specific information is available concerning the occurrence of other wildlife at the site. Mammals such as racoon, skunk, rabbit, squirrels, voles, and mice are probably present.

F. Threatened and Endangered Species

According to the United States Fish and Wildlife Service there are no extant or historical records of Federally threatened or endangered species occurring at the project area. The Connecticut Department of Environmental Protection indicates that no Connecticut "Species of Special Concern" are known to exist at the site (see the Appendix).

The Connecticut River below Holyoke, Vermont supports a small resident population of the federally endangered shortnose sturgeon (Dadswell et al., 1984). The stretch of river between Hartford and Haddam (which includes Middletown), however, is apparently used by adults only for short intervals during transit (Buckley and Kynard, 1983). Spawning occurs in the spring upriver of Middletown, near Holyoke, VT and possibly Enfield, CT (see Tomey, 1986). Young of the year fish probably reside above Enfield. Distribution of juveniles is probably similar to that of adults (Tomey 1986). Juveniles feed primarily on invertebrates in deepwater (30 - 60 feet) pools and holes (Pottle and Dadswell, 1979).

G. Cultural Resources

The Connecticut River Valley has a high potential for archaeological resources. Areas along the river are especially sensitive for prehistoric sites. However, because the project area has been riprapped in the recent past, the presence of archaeological or historical resources is unlikely.

IV. ENVIRONMENTAL IMPACTS

A. Aquatic and Riparian Habitat

Construction activities would destroy the existing nearshore aquatic habitat along ca. 420 feet of riverbank. Approximately 0.2 acres of riparian habitat above mean high water level would be affected. The irregular natural bank will be replaced by a uniform, graded, slope.

The stone base of the revetment below mean high water level will be a more stable but less diverse substrate relative to the preexisting habitat (cf. Sandheinrich and Atchison, 1986). Muddy substrate and microhabitats provided by fallen trees and undercut banks will be largely lost. Rock surface area will be increased.

B. Water Quality

Construction activities will result in temporary increases in suspended solid load and turbidity in the Connecticut River near the project area. Given the modest scope of this project, and the substantial flow volume of the river at Middletown, the short term impact on water quality will be slight, and highly localized. Input of suspended solids into the river would be minimized by working at a time when water levels are at seasonal lows. Gravel fill placed below mean low water level should be clean, and have a low silt content. In the long term, the proposed project may have a positive impact on water quality by curtailing sediment export from the eroding riverbank.

C. Aquatic Resources

1. Aquatic Invertebrates

Construction activities at the work site will destroy the existing nearshore aquatic invertebrate community. Stone at the base of the revetment, however, will provide a suitable substrate for the reestablishment of an aquatic invertebrate community. Given the potential for recruitment via drift from upstream habitats, and the short generation time of many aquatic invertebrate species, colonization of the revetment should occur rapidly (see Nunnally and Shields, 1985).

The stone will probably support an invertebrate assemblage similar to that of the existing rocky substrate. Silt trapped in sheltered areas between stone should support some of the species found in the existing muddy substrate. Dipterans, tricopterans, and ephemeropterans are expected to dominate the resulting invertebrate community (cf. Burress et al., 1982; Atchinson et al., 1986).

Other studies have indicated that revetments may increase invertebrate density by stabilizing banks and providing increased surface area suitable for epibenthic invertebrates (Sandheinrich and Atchinson, 1986). Relative to natural riverbank, however, the stone is likely to be a more homogeneous habitat, and will probably support fewer invertebrate species.

2. Fish

Temporary increases in suspended sediment concentration near the project area during construction will have no significant impact on fish in the Connecticut River. Fish are generally tolerant of short term exposure to moderate levels of suspended sediments (Stern and Stickle, 1978). Furthermore, as occurs during dredging (i.e. Moore et al., 1977), adult and juvenile fish will probably largely avoid increased turbidity and underwater noise at the construction site. Fish eggs and larvae are generally more sensitive to suspended sediments than juvenile or adult fish, but are also not likely to be significantly impacted by this project. Impacts will be minimal because of the small scope of this project, employment of proper erosion control techniques, and because work will probably occur when densities of fish eggs and larvae in the Connecticut River are low.

The revetment is likely to support a somewhat different fish community than the existing unmodified bank. Modified habitat structure may lead to changes in species richness, the relative abundance of species, fish density, and fish biomass. Studies are equivocal, however, as to whether revetments support higher or lower species numbers, densities, and biomass relative to unmodified river bank (see Sandheinrich and Atchinson, 1986). In large rivers, however, sheltered spaces between rocks in revetments often support increased densities of larval and juvenile fish relative to the natural channel.

D. Riparian Resources

1. Vegetation

Construction will result in the loss of riparian vegetation along approximately 420 feet of the river. Losses will include approximately 150 large trees plus many smaller trees, shrubs, and vines. Loss of vegetation is unavoidable, and would occur to some extent even if no action were taken.

Loss of the riparian community will be offset, to an extent, by planting grasses and herbs on the revetment. Additional information concerning the revegetation plan is provided below.

2. Wildlife

Birds and other wildlife inhabiting the project area will be displaced by construction activities. It would be desirable to conduct work in late summer or fall to minimize disruption to birds breeding or nesting in the project area.

Relative to the no action alternative, the proposed project would probably lead to a decline in bird species diversity along the affected section of the Connecticut River. Construction of the revetment will result in the long term loss of potential breeding habitat for 16 species of birds that nest in shrubs or trees (Table 2). Revegetation of the revetment would, however, be beneficial for species which nest in herbaceous vegetation and grasses.

The project will probably decrease habitat value for some mammals, such as racoons, but provide higher quality habitat for others, such as rabbits, mice and voles.

E. Threatened and Endangered Species

This project is expected to have no impact on any species considered threatened or endangered by the U.S. Fish and Wildlife Service or the State of Connecticut (see correspondence from Gordon Beckett, U.S. F.W.S., September 21, 1987; and Megan Rollins, Connecticut D.E.P., September 1, 1987).

F. Cultural Resources

The project area has been modified in recent time, and no impact is anticipated upon any structure or site of historical, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966. The office of the State Historic Preservation Officer of Connecticut has concurred with this finding (see corespondence from Dawn Madox, July 27, 1988).

V. ACTIONS TAKEN TO MINIMIZE ENVIRONMENTAL IMPACTS

A. Timing of Construction

Work should occur during late summer and fall (August through October), when water levels in the Connecticut River are at or near seasonal lows. This time frame would minimize adverse affects on water quality, eggs and larvae of anadromous and resident fish species, and on birds nesting in the project area.

B. Habitat Enhancement/Preservation

1. Aquatic Habitat

Using stone below mean high water level, rather than grid block, will provide a more suitable habitat for aquatic invertebrates and fish. Any submerged logs or snags in the river, not in the immediate construction area, will be left in place to provide shelter for fish. Any large rocks or snags excavated during construction should be placed in the river, below the toe of the revetment.

2. Riparian Habitat

The grid block surface of the revetment will be backfilled with topsoil, seeded with a mixture of annual and perennial grasses, and herbs, and mulched. At present, it is anticipated that switch grass (Panicum vergatum), redtop (Agrostis alba), annual rye (Lolium multiflorum), birdsfoot trefoil (Lotus corniculatus), and white clover (Trifolium repens) will be planted. These species are tolerant of poorly drained and dry soils (E.P.A., 1976), and should provide good cover and/or wildlife food value (Martin et al., 1951).

Because critical public facilities are threatened, engineering concerns preclude the planting of shrubs or trees on the revetment (see Henderson and Shields, 1984).

Efforts will be made to limit damage to trees and shrubs adjacent to the project area.

C. Erosion Control Measures

If possible work will be conducted when water levels are near or at seasonal lows. Standard measures will be employed to control runoff and minimize sediment export from the construction site.

D. Other Actions

A substantial volume of woody vegetation will be removed from the work area. Consideration should be given to salvaging boles for firewood. Unnecessary disposal of material in landfills, a limited resource in Connecticut, should be avoided.

VI. COORDINATION

A. Personnel Communications (phone conversations)

Doug Beach. NMFS. Gloucester, MA. (February 19, 1988).

Tom Bigford. NMFS. Glouchester, MA. (10-20-87).

Brian Emerick. Connecticut D.E.P. Coastal Area Management. Hartford, CT. (8-25-87)

Linda Gunn. Connecticut D.E.P. Warterford, CT. (November 11, 1988)

Karen Hayward. Connecticut D.E.P. Water Compliance Unit. Hartford CT. (8-25-87)

James Linney. U.S.G.S. Boston, MA. (10-19-87)

Peter Mintre. Connecticut D.E.P. (ca. 9-1-87).

David Rosgen. Audubon Society. Litchfield, Ct. (12-17-87).

Julie Victoria. Connecticut D.E.P. Wildlife Bureau. (10-20-87)

B. Correspondence (letters received)

Gordon Beckett. U.S. F.W.S. Ecological Services. Concord, N.H. (September 21, 1987)

Megan Rollins. Connecticut D.E.P. Hartford, CT. (September 1, 1988)

Dawn Maddox. Office of the State Historic Preservation Officer. Hartford, CT. (July 27, 1988)

Julie Victoria. Connecticut D.E.P. Wildlife Bureau. Burlington, CT (October 30, 1987)

VII. COMPLIANCE WITH ENVIRONMENTAL FEDERAL STATUTES AND EXECUTIVE ORDERS

Federal Statutes

1. Preservation of Historic and Archaeological Data Act of 1974, as amended, 16 U.S.C. 469 et seq.

Compliance: Consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation concerning mitigation of historic and/or archaeological resources signifies compliance.

2. Clean Air Act, as amended, 42 U.S.C. 7401 et seq.

Compliance: Public notice of the availability of this report to the Environmental Protection Agency signifies compliance pursuant to Sections 176c and 309 of the Clean Air Act

3. Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et seq.

Compliance: A Section 404(b)(1) Evaluation and Compliance Review have been incorporated into this report. An application shall be filed for State Water Quality Certification pursuant to Section 401 of the Clean Water Act.

4. Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1431 et seq.

Compliance: Not Applicable; project is not located within the state designated coastal zone.

5. Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.

Compliance: Coordination with the U.S. Fish and Wildlife Service (see September 21, 1987 lettr) and the State of Connecticut Department of Environmental Conservation (see September 1, 1987 letter) has yielded no formal consultation requirements pursuant to Section 7 of the Endangered Species Act.

6. Estuarine Areas Act, 16 U.S.C. 1221 et seq.

Compliance: Not applicable.

7. Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq.

Compliance: Public notice of the Availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

8. Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.

Compliance: Coordination with the U.S. FWS, NMFS (NOAA), and the Connecticut Department of Environmental Protection signifies compliance with the Fish and Wildlife Coordination Act.

9. Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-4 et seq.

Compliance: Public notice of the availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

10. Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. 1401 et seq.

Compliance: Not Applicable.

11. National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.

Compliance: Coordination with the State Historic Preservation Office determined that no historic or archaeological resources would be affected by the proposed project (see July 27, 1987 letter).

12. National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321 et seq.

Compliance: Preparation of this report signifies partial compliance with NEPA. Full compliance shall be noted at the time the Finding of No Significant Impact is issued.

13. Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.

Compliance: No requirements for Corps' projects or programs authorized by Congress. The proposed streambank protection project is pursuant to the Congressionally-approved continuing authority program: Section 14 of the 1946 Flood Control Act.

14. Watershed Protection and Flood Prevention Act, as amended, 16 U.S.C. 1001 et seq.

Compliance: Not applicable.

15. Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq.

Compliance: Not Applicable.

Executive Orders

1. Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.

Compliance: Public notice of the availability of this report signifies compliance with this order.

2. Executive Order 11990, Protection of Wetlands, 24 May 1977.

Compliance: Circulation of this report for public review fulfills the requirements of Executive Order 11990, Section 2(b).

3. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, 4 January 1979.

Compliance: Not Applicable.

Executive Memorandum

1. Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980.

Compliance: Not Applicable.

VIII. REFERENCES

Atchinson, G.J., R.W. Bachmann, J.G. Nickum, J.B. Barnum, and M.B. Sandheinrich. 1986. Aquatic biota associated with channel stabilization structures and abandoned channels in the middle Missouri River. US Army Corps of Engineers (WES) Technical Report E-86-6.

Blake, M.M., and E.M. Smith. 1984. A Marine Resources Management Plan for the State of Connecticut. Connecticut Dept. of Environmental Protection. Hartford.

Buckley, J.L. and B. Kynard. 1983. Studies on shortnose sturgeon. Mass. Coop. Fish Res. Unit. Amherst, MA

Burress, R.M., D.A. Krieger, and C.H. Pennington. 1982. Aquatic biota of bank stabilization structures on the Missouri River, North Dakota. US Army Corps of Engineers (WES) Technical Report E-82-6

Connecticut Dept. of Environmental Protection. 1983. Adopted water quality classifications for the Connecticut River basin. Water Compliance Unit Map.

Dadswell, M.J., B.D. Taubert, T.S. Squires, D. Marchette, and J. Buckley. 1984. Synopsis of biological data on shortnose sturgeon (Acipenser brevirpstrum), Leseur 1818. FAO Fisheries Symposium No. 140. U.S. Dept. of Commerce, NOAA, NMFS. Washington D.C. 45 p.

E.P.A. 1976. Erosion and sediment control (surface mining in eastern U.S.). EPA-625/3-76-006

Marcy, B.C. Jr. 1976 a. Fishes of the lower Connecticut river and the effects of the Connecticut Yankee plant. p. 61-113. In: (D. Merriman and L.M. Thorpe eds.) "The Connecticut River Ecological Study'. The Impact of a Nuclear Power Plant. Amer. Fish. Soc. Monograph No. 1.

Marcy, B.C. Jr. 1976 b. Planktonic fish eggs and larvae of the lower Connecticut river and the effects of the Connecticut Yankee plant including entrainment. pp. 115-140. In: (D. Merriman and L.M. Thorpe eds.) "The Connecticut River Ecological Study'. The Impact of a Nuclear Power Plant. Amer. Fish. Soc. Monograph No. 1.

Martin, A.C., H.S. Zim, and A.L. Nelson. 1951. American Wildlife and Plants: A Guide to Wildlife Food Habits. Dover Publications, New York (1961 republication).

Masengill, R.R. 1976. Benthic fauna: 1965-1967 versus 1968-1972. pp. 39-54. In: (D. Merriman and L.M. Thorpe eds.) "The Connecticut River Ecological Study. The Impact of a Nuclear Power Plant. Amer. Fish. Soc. Monograph No. 1.

Moore, R.B., P.C. Patton, and E.B. Patton. 1977. Biological study to determine the distribution and behavior of juvenile shad (Alosa sapidissima, Wilson) in relation to dredging and aquatic disposal of dredged material in the Connecticut River. Essex Marine Laboratory. Inc. Essex CT.

Nunnally, N.R., and F.D. Shields. 1985. Incorporation of environmental features in flood control channel projects. US Army Corps of Engineers (WES) Technical Report E-85-3.

Pottle, R. and M.J. Dadswell. 1979. Studies on larval and juvenile shortnose sturgeon (Acipenser brevirostrum). Washburn and Gillis Assoc. LTD. Fredericton, N.B. Canada.

Sandheinrich, M.B., and G.J. Atchinson. 1986. Environmental effects of dikes and revetments on large riverine systems. US Army Corps of Engineers (WES) Technical Report E-86-5.

Stern, E.M., and W.B. Stickle. 1978. Effects of turbidity and suspended material in aquatic environments (literature review). U.S. COE (WES) TR D-78-21

Tomey, D. 1986. Generic environmental assessment/ 404(b)(1) evaluation for the maintenance dredging of the Connecticut River Federal channel below Hartford Connecticut. Corps of Engineers. New England Division. Waltham, Massachusetts

Thomas, C.E., L.A. Weiss, I.S. Gasperini, and J.W. Bingham. 1985. Water Resources Data Connecticut. Water Year 1983. U.S.G.S. water-data report CT-83-1.

U.S. Department of Commerce (U.S.D.C.) 1985. Tide Tables 1985. High and low water predictions. East coast of North and South America. NOAA. Washington, D.C.

Whitworth, W.R., P.L. Berrien, and W.T. Keller. 1968. Freshwater Fishes of Connecticut. State. Geol. Nat. Hist. Sur. Conn. Bull. 101. 134 pp.

APPENDIX

(Pertinent Correspondence)

Office of the
STATE
HISTORIC
PRESERVATION
OFFICER
for Connecticut

59 SOUTH PROSPECT STREET • HARTFORD, CONNECTICUT 06106 • 203 566-3005

July 27, 1987

Mr. Joseph L. Ignazio
Chief, Planning Division
New England Division, Corps of
Engineers
424 Trapelo Road
Waltham, MA 02254-9149

SUBJECT: Streambank Protection
Middletown, CT

Dear Mr. Ignazio:

The State Historic Preservation Office has reviewed the above-named project. In the opinion of the State Historic Preservation Office, this project will have no effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places.

This office appreciates the opportunity to have reviewed and commented upon the project.

We recommend that the responsible agency provide concerned citizens with the opportunity to review and comment upon the project in accordance with the National Historic Preservation Act of 1966.

For further information, please contact Dr. David A. Poirier, Staff Archaeologist.

Sincerely,

Dawn Maddox

Dawn Maddox
Deputy State Historic
Preservation Officer

DAP:nlw

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

NATURAL RESOURCES CENTER
Rm 553, 165 Capitol Avenue
Hartford, Connecticut 06105
Connecticut Natural Diversity Data Base

September 1, 1987

Joseph L. Ignazio
Department of the Army
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Ignazio,

I have reviewed Data Base maps and files regarding the proposed erosion control project along the Connecticut River in Middletown as indicated on the map you provided.

According to our information, there are no extant or historic records of Federally Endangered or Threatened species, or Connecticut "Species of Special Concern" at the sites in question.

Natural Diversity Data Base information includes all information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Natural Resources Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultation with the Data Base should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please feel free to contact us with any questions you may have (203)566-3540. Thank-you for contacting the Natural Diversity Data Base.

Sincerely,

Megan Rollins

Megan G. Rollins
Data Handler

United States Department of the Interior

FISH AND WILDLIFE SERVICE
400 RALPH PILL MARKETPLACE
22 BRIDGE STREET
CONCORD, NEW HAMPSHIRE 03301-4901

Mr. Joseph L. Ignazio, Chief
Planning Division
ATTN: Impact Analysis Branch
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

SEP 21 1987

Dear Mr. Ignazio:

This responds to your request, dated August 26, 1987, for information on the presence of Federally listed and proposed endangered or threatened species in accordance with the proposed Section 14 Emergency Streambank Protection Project in Middletown, Connecticut.

Our review shows that except for occasional transient individuals, no Federally listed or proposed threatened and endangered species under our jurisdiction are known to exist in the project area. However, you may wish to contact Rita Maroncelli of the Connecticut Department of Environmental Protection at 203-584-9830 for information on state listed species. No Biological Assessment or further consultation is required with us under Section 7 of the Endangered Species Act. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to endangered species under our jurisdiction. No other wildlife or significant habitat is likely to be impacted by the proposed project.

A list of Federally designated endangered and threatened species in Connecticut is inclosed for your information. Thank you for your cooperation and please contact Roger Hogan of my staff at 603-225-1411 if we can be of further assistance.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor
New England Area

Inclosure

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES
IN CONNECTICUT

Common Name	Scientific Name	Status	Distribution
FISHES:			
Sturgeon, shortnose*	Acipenser brevirostrum	E	Connecticut River & Atlantic Coastal Waters
REPTILES:			
Turtle, green*	Chelonia mydas	T	Oceanic straggler in Southern New England
Turtle, hawksbill*	Eretmochelys imbricata	E	Oceanic straggler in Southern New England
Turtle, leatherback*	Dermochelys coriacea	E	Oceanic summer resident
Turtle, loggerhead*	Caretta caretta	T	Oceanic summer resident
Turtle, Atlantic ridley*	Lepidochelys kempii	E	Oceanic summer resident
BIRDS:			
Eagle, bald	Haliaeetus leucocephalus	E	Entire state
Falcon, American peregrine	Falco peregrinus anatum	E	Entire state-reestablishment to former breeding range in progress
Falcon, Arctic peregrine	Falco peregrinus tundrius	E	Entire state migratory-no nesting
Plover, Piping	Charadrius melodus	T	Entire State - nesting habitat
MAMMALS:			
Cougar, eastern	Felis concolor couguar	E	Entire state - may be extinct
Whale, blue*	Balaenoptera musculus	E	Oceanic
Whale, finback*	Balaenoptera physalus	E	Oceanic
Whale, humpback*	Megaptera novaeangliae	E	Oceanic
Whale, right*	Eubalaena spp. (all species)	E	Oceanic
Whale, sei*	Balaenoptera borealis	E	Oceanic
Whale, sperm*	Physeter catodon	E	Oceanic
MOLLUSKS:			
NONE			
PLANTS:			
Small Whorled Pogonia	Isotria medeoloides	E	Hartford [illegible]

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WILDLIFE BUREAU

SESSIONS WOODS WILDLIFE MANAGEMENT AREA
P.O BOX 1238 • BURLINGTON, CT 06013
TELEPHONE (203) 584-9830

October 30, 1987

Mr. Michael Penko
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254

Dear Mike:

Thank you for contacting this office regarding activities that area slated to occur in the Middletown, Connecticut area.

Our office has no federally endangered or threatened species listed in this area. As for any nesting birds along the river edge, I contacted Mr. Dave Rosgen who was the coordinator for the National Audubon Society's Breeding Bird Atlas (unpublished). Dave was kind enough to provide the summary report from that area.

If you have any questions about the breeding bird summary, you can reach Dave Rosgen at (203) 567-5281 or feel free to contact me and I can relay a message.

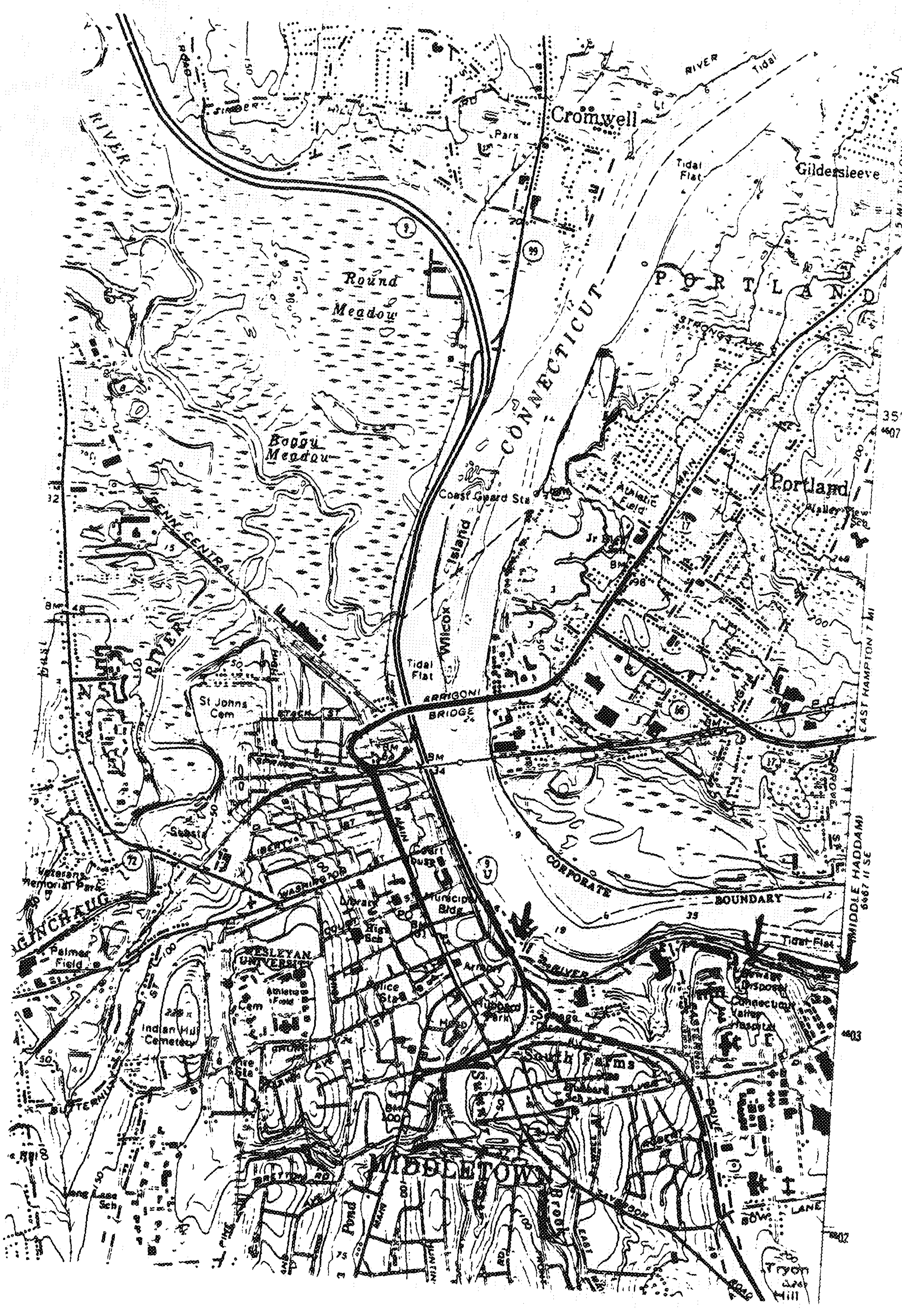
Sincerely,

Julie Victoria
Wildlife Biologist

JV/mk

Enclosures

cc: D. Rosgen


Cromwell
Gildersleeve
PORTLAND
Round Meadow
Boggy Meadow
CONNECTICUT
Portland
Coast Guard Sta
Athletic Field
Wilcox Island
Tidal Flat
ARRIGONI BRIDGE
St Johns Cem
PENN CENTRAL
RIVER
CORPORATE BOUNDARY
Veterans Memorial Park
Palmer Field
WESLEYAN UNIVERSITY
Library
High Sch
Court House
Municipal Bldg
Indian Hill Cemetery
South Farms
Connecticut Valley Hospital
Sewage Disposal
MIDDLETOWN
Long Lane Sch
Tryon Hill
EAST HAMPTON 7 MI
MIDDLE HADDAM
GLASTONBURY

CONNECTICUT BREEDING BIRD ATLAS PROJECT

Summary Report for 1982 -- 1985 Field Survey Data

25 February, 1985 20:56.19

East-Central Middletown

BLOCK - 067D REGION - 5 * = site in question

No.	Species	Poss	Prob	Conf		Nesting Microhabitat
1050	Green Heron	O	=	==	*	5,6,7
1160	Mute Swan	=	P	==	*	3
1180	Mallard	=	=	FL	*	3
1240	Wood Duck	=	=	FL	*	8
1300	Turkey Vulture	O	=	==		
1340	Red-tailed Hawk	=	=	FL		
1440	Ring-necked Pheasant	S	=	==		
1490	Virginia Rail	=	T	==		
1540	Killdeer	O	=	==	*	2,3
1580	Spotted Sandpiper	=	=	DD	*	3,4
1680	Rock Dove	=	=	NY		
1690	Mourning Dove	=	=	AY		
1720	Barn Owl	=	=	FL		
1730	Common Screech Owl	=	T	==		
1820	Chimney Swift	=	=	FL		
1830	Ruby-throated Hummingbird	O	=	==		
1840	Belted Kingfisher	=	=	ON	Feeding only	
1850	Common Flicker	=	P	==	*	8
1900	Hairy Woodpecker	S	=	==		
1910	Downy Woodpecker	O	=	==	*	8
1920	Eastern Kingbird	S	=	==	*	5,6,7
1940	Eastern Phoebe	=	=	ON		
2000	Eastern Pewee	=	T	==		
2030	Tree Swallow	O	=	==	Feeding only	
2050	Rough-winged Swallow	=	=	AY	" "	
2060	Barn Swallow	=	C	==	" "	
2090	Blue Jay	=	=	FL	*	5,6,7
2110	American Crow	=	=	AY	*	7
2130	Black-capped Chickadee	=	=	FL	*	8
2150	Tufted Titmouse	=	=	FL	*	8
2160	White-breasted Nuthatch	=	T	==		
2190	House Wren	S	=	==		
2210	Carolina Wren	=	[illegible]	NY	*	
2220	Marsh Wren	S	=	==		
2240	Northern Mockingbird	=	T	==		
2250	Gray Catbird	=	=	AY	*	5
2260	Brown Thrasher	O	=	==		
2270	American Robin	=	=	AY	*	5,6,7
2280	Wood Thrush	S	=	==		
2370	Cedar Waxwing	O	=	==	*	5,6
2390	European Starling	=	=	AY	*	8
2540	Yellow Warbler	S	=	==	*	5,6
2700	Common Yellowthroat	S	=	==	*	3,4,5

CONNECTICUT BREEDING BIRD ATLAS PROJECT

Summary Report for 1982 -- 1985 Field Survey Data

25 February, 1985 20:56.19 Page 797

East-Central Middletown

BLOCK - 067D REGION - 5

* = site in question

No.	Species	Poss	Prob	Conf		Nesting Microhabitat
1050	Green Heron	O	=	==	*	5,6,7
1160	Mute Swan	=	P	==	*	3
1180	Mallard	=	=	FL	*	3
1240	Wood Duck	=	=	FL	*	8
1300	Turkey Vulture	O	=	==		
1340	Red-tailed Hawk	=	=	FL		
1440	Ring-necked Pheasant	S	=	==		
1490	Virginia Rail	=	T	==		
1540	Killdeer	O	=	==	*	2,3
1580	Spotted Sandpiper	=	=	DD	*	3,4
1680	Rock Dove	=	=	NY		
1690	Mourning Dove	=	=	AY		
1720	Barn Owl	* =	=	FL		
1730	Common Screech Owl	=	T	==		
1820	Chimney Swift	=	=	FL		
1830	Ruby-throated Hummingbird	O	=	==		
1840	Belted Kingfisher	=	=	ON	Feeding only	
1850	Common Flicker	=	P	==	*	8
1900	Hairy Woodpecker	S	=	==		
1910	Downy Woodpecker	O	=	==	*	8
1920	Eastern Kingbird	S	=	==	*	5,6,7
1940	Eastern Phoebe	=	=	ON		
2000	Eastern Pewee	=	T	==		
2030	Tree Swallow	O	=	==	Feeding only	
2050	Rough-winged Swallow	=	=	AY	" "	
2060	Barn Swallow	=	C	==	" "	
2090	Blue Jay	=	=	FL	*	5,6,7
2110	American Crow	=	=	AY	*	7
2130	Black-capped Chickadee	=	=	FL	*	8
2150	Tufted Titmouse	=	=	FL	*	8
2160	White-breasted Nuthatch	=	T	==		
2190	House Wren	S	=	==		
2210	Carolina Wren	=	~~=~~	NY		
2220	Marsh Wren	S	=	==		
2240	Northern Mockingbird	=	T	==		
2250	Gray Catbird	=	=	AY	*	5
2260	Brown Thrasher	O	=	==		
2270	American Robin	=	=	AY	*	5,6,7
2280	Wood Thrush	S	=	==		
2370	Cedar Waxwing	O	=	==	*	5,6
2390	European Starling	=	=	AY	*	8
2540	Yellow Warbler	S	=	==	*	5,6
2700	Common Yellowthroat	S	=	==	*	3,4,5

NEW ENGLAND DIVISION
U.S. ARMY CORPS OF ENGINEERS, WALTHAM, MA
SECTION 404(b)(1) EVALUATION

PROJECT: Middletown, Connecticut Emergency Streambank Protection Project.

PROJECT MANAGER: Robert Martin EXT. 617-647-8398

FORM COMPLETED BY: Michael Penko EXT. 617-647-8139

PROJECT DESCRIPTION:

The proposed project involves the construction of approximately 420 feet of grid block revetment (with stone toe) along the Connecticut River in Middletown, Connecticut. Streambank erosion at this location is threatening a public highway, a sewage pump station, and an underground water main.

Plans call for clearing the existing bank and grading it to a 1 horizontal to 2 vertical slope. In areas where the existing slope is steep, gravel fill would be placed to establish a 1:2 slope. The stone toe would consist of gravel bedding overlain by 12" of stone bedding and a 3' layer of coarse stone. The toe would extend below mean low water level along approximately 100 feet of the river. Protection above the stone toe would consist of 6-inch grid block underlain by gravel bedding. Grid blocks would be covered with 6 inches of topsoil, seeded and mulched. Construction is expected to occur during a three month period in late summer or early fall.

NEW ENGLAND DIVISION
U.S. ARMY CORPS OF ENGINEERS, WALTHAM, MA

PROJECT: Middletown, Connecticut Emergency Streambank Protection Project.

SHORT-FORM
Evaluation of Section 404(b)(1) Guidelines

1. Review of Compliance (Section 230.10(a)-(d)).

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose;

[X] YES [ ] NO

b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary check responses from resource and water quality certifying agencies);

[X] YES [ ] NO

c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values;

[X] YES [ ] NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem

[X] YES [ ] NO

2. Technical Evaluation Factors (Subparts C-F).

	N/A	Not Signif-icant	Signif-icant
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).			
1) Substrate.			X
2) Suspended particulates/turbidity.			X
3) Water.			X
4) Current patterns and water circulation.	X		
5) Normal water fluctuations.	X		
6) Salinity gradients.	X		
b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D).			
1) Threatened and endangered species.	X		
2) Fish, crustaceans, mollusks and other aquatic organisms in the food web.			X
3) Other wildlife.			X
c. Potential Impacts on Special Aquatic Sites (Subpart E).			
1) Sanctuaries and refuges.	X		
2) Wetlands.			X
3) Mud flats.	X		
4) Vegetated shallows.	X		
5) Coral reefs.	X		
6) Riffle and pool complexes.	X		
d. Potential Effects on Human Use Characteristics (Subpart F).			
1) Municipal and private water supplies.	X		
2) Recreational and Commercial fisheries.			X
3) Water-related recreation.			X
4) Aesthetics.			X
5) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves.	X		

3. Evaluation and Testing (Subpart G).

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

1)	Physical characteristics	[X]
2)	Hydrography in relation to known or anticipated sources of contaminants	[ ]
3)	Results from previous testing of the material or similar material in the vicinity of the project	[ ]
4)	Known, significant sources of persistent pesticides from land runoff or percolation	[ ]
5)	Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)	[ ]
6)	Public records of significant introduction of contaminants from industries, municipalities, or other sources	[ ]
7)	Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	[ ]
8)	Other sources (specify)	[X]

List appropriate references.

See the environmental assessment completed for this project.

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria. [X] YES [ ] NO

4. Disposal Site Delineation (Section 230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

1)	Depth of water at disposal site	[X]
2)	Current velocity, direction, and variability at disposal site	[ ]
3)	Degree of turbulence	[ ]
4)	Water column stratification	[ ]
5)	Discharge vessel speed and direction	[ ]
6)	Rate of discharge	[ ]
7)	Dredged material characteristics (constituents, amount, and type of material, settling velocities)	[X]
8)	Number of discharges per unit of time	[ ]
9)	Other factors affecting rates and patterns of mixing (specify)	[ ]

List appropriate references.

Information concerning the physical characteristics of the disposal site, and dredged material volume and grain size is presented in the EA.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable..... [X] YES [ ] NO

5. Actions To Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge..... [X] YES [ ] NO

List actions taken.

1. Construction activities will probably be timed to occur during the seasonal low flow period (August through October).

2. Standard erosion control measures will be employed during construction to minimize discharge of sediments into the river.

6. Factual Determination (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

a. Physical substrate (review sections 2a, 3, 4, and 5 above). YES [X] NO [ ]

b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5). YES [X] NO [ ]

c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5). YES [X] NO [ ]

d. Contaminant availability (review sections 2a, 3, and 4). YES [X] NO [ ]

e. Aquatic ecosystem structure, function and organisms(review sections 2b and c, 3, and 5) YES [X] NO [ ]

f. Proposed disposal site (review sections 2, 4, and 5). YES [X] NO [ ]

g. Cumulative effects on the aquatic ecosystem. YES [X] NO [ ]

h. Secondary effects on the aquatic ecosystem. YES [X] NO [ ]

7. Findings of Compliance or non-compliance.

a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines.....[X]

DATE

Daniel M. Wilson
Colonel, Corps of Engineers
Division Engineer

VII. COMPLIANCE WITH ENVIRONMENTAL FEDERAL STATUTES AND EXECUTIVE ORDERS

Federal Statutes

1. Preservation of Historic and Archaeological Data Act of 1974, as amended, 16 U.S.C. 469 et seq.

Compliance: Consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation concerning mitigation of historic and/or archaeological resources signifies compliance.

2. Clean Air Act, as amended, 42 U.S.C. 7401 et seq.

Compliance: Public notice of the availability of this report to the Environmental Protection Agency signifies compliance pursuant to Sections 176c and 309 of the Clean Air Act

3. Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et seq.

Compliance: A Section 404(b)(1) Evaluation and Compliance Review have been incorporated into this report. An application shall be filed for State Water Quality Certification pursuant to Section 401 of the Clean Water Act.

4. Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1431 et seq.

Compliance: Not Applicable; project is not located within the state designated coastal zone.

5. Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.

Compliance: Coordination with the U.S. Fish and Wildlife Service (see September 21, 1987 lettr) and the State of Connecticut Department of Environmental Conservation (see September 1, 1987 letter) has yielded no formal consultation requirements pursuant to Section 7 of the Endangered Species Act.

6. Estuarine Areas Act, 16 U.S.C. 1221 et seq.

Compliance: Not applicable.

7. Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq.

Compliance: Public notice of the Availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

8. Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.

Compliance: Coordination with the U.S. FWS, NMFS (NOAA), and the Connecticut Department of Environmental Protection signifies compliance with the Fish and Wildlife Coordination Act.

9. Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-4 et seq.

Compliance: Public notice of the availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

10. Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. 1401 et seq.

Compliance: Not Applicable.

11. National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.

Compliance: Coordination with the State Historic Preservation Office determined that no historic or archaeological resources would be affected by the proposed project (see July 27, 1987 letter).

12. National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321 et seq.

Compliance: Preparation of this report signifies partial compliance with NEPA. Full compliance shall be noted at the time the Finding of No Significant Impact is issued.

13. Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.

Compliance: No requirements for Corps' projects or programs authorized by Congress. The proposed streambank protection project is pursuant to the Congressionally-approved continuing authority program: Section 14 of the 1946 Flood Control Act.

14. Watershed Protection and Flood Prevention Act, as amended, 16 U.S.C. 1001 et seq.

Compliance: Not applicable.

15. Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq.

Compliance: Not Applicable.

Executive Orders

1. Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.

Compliance: Public notice of the availability of this report signifies compliance with this order.

2. Executive Order 11990, Protection of Wetlands, 24 May 1977.

Compliance: Circulation of this report for public review fulfills the requirements of Executive Order 11990, Section 2(b).

3. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, 4 January 1979.

Compliance: Not Applicable.

Executive Memorandum

1. Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980.

Compliance: Not Applicable.

FINDING OF NO SIGNIFICANT IMPACT

The proposed plan involves the construction of approximately 420 feet of stone and grid block revetment along a section of the Connecticut River in Middletown, Connecticut. At present, bank erosion at the project area is threatening a public road, water main, and sewage pumping facility.

No significant, adverse impacts to the environment are anticipated. The major impact of this project would be the clearing of 0.2 acres of somewhat degraded riparian habitat. Approximately 150 large trees would be removed. Many of these trees have been undermined by erosion and would eventually be lost, even if no action were taken. Losses to vegetation will be offset, in part, by planting grasses and herbs on the paving block revetment. Loss of trees and shrubs may reduce nesting habitat for some bird species. The revegetated revetment, however, would be suitable habitat for other species.

Construction will result in a localized, short term increase in suspended solid load in the Connecticut River. Sediment loading would be minimized by employing standard erosion control techniques and, if possible, by scheduling the construction during the seasonal low flow period.

The project will destroy the existing nearshore aquatic habitat and community along ca. 420 feet of riverbank. The stone base of the revetment will, however, provide a suitable substrate for the reestablishment of a productive aquatic invertebrate community.

Although localized changes in fish community structure may occur, the project should have no significant adverse impact on adult fish or fish eggs and larvae in the Connecticut River at Middletown.

This project will have no anticipated impact on any State or Federal rare or endangered species.

No archaeological or historical resources will be affected by this project

Based on my review and evaluation of the environmental effects as presented in the environmental assessment, I have determined that the Middletown Section 14 Emergency Streambank Protection Project is not a major Federal action significantly affecting the quality of the human environment, and is therefore exempt from requirements to prepare an Environmental Impact Statement.

Date _____ _____

Daniel M. Wilson
Colonel, Corps of Engineers
Division Engineer

ENCLOSURES

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

January 26, 1989

Colonel Daniel Wilson
Division Engineer
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Re: Connecticut River Erosion Protection, Middletown, CT

Dear Colonel Wilson:

Based on preliminary sketches and several discussions with both the City of Middletown and the Army Corps of Engineers, the Connecticut Department of Environmental Protection (DEP) generally supports the above referenced project. However, the Department has one concern which must be addressed during detailed planning before the State will issue the necessary permits. Specifically, the proposed erosion protection should minimize additional encroachments into the river and adverse impacts. When this concern is satisfied, both a Connecticut Stream Channel Encroachment Line Permit and Section 401 Water Quality Certification may be obtained from the DEP/Water Resources Unit.

The State of Connecticut wishes to be the local sponsor of the project. We have reviewed the conditions of the draft Local Cooperation Agreement and understand the responsibilities of the local sponsor. However, the State will enter into a parallel agreement with the City of Middletown to pass selected responsibilities of the local sponsor to the City. Both the City and State have their funding in place to cover their estimated shares for the project.

We hope that this letter will be sufficient as a project letter of support from the State, assurance that a Section 401 Water Quality Certification can be obtained, identification of local sponsor and letter of intent from the local sponsor. If you have any questions, contact Alphonse J. Letendre or Stephen Andrzejewski of my staff at 566-7244.

Sincerely,

Charles E. Berger, Jr.
Acting Assistant Director
DEP/Water Resources Unit

CEB:STA:aek

Phone:
165 Capitol Avenue • Hartford, Connecticut 06106

OFFICE OF THE MAYOR
City of Middletown
CONNECTICUT 06457
SEBASTIAN J. GARAFALO
Mayor

September 29, 1988

Colonel Daniel Wilson, Division Engineer
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Dear Colonel Wilson:

On behalf of the City of Middletown I would like to support your efforts to protect several areas along our portion of the Connecticut River from the harmful effects of erosion. The City is presently in the process of reconstructing River Road, and the Army Corps Streambank Protection project at the end of Eastern Drive at River Road will go a long way toward protecting this badly needed infrastructure improvement. Further downstream, our Water & Sewer Department is currently working with the State Departments of Environmental Protection and Health on the design of expanding the Municipal wellfields. This, too, is a vulnerable area and vital municipal resource which is threatened by streambank erosion. Here too, once the designs are mutually agreed upon, the City wholeheartedly supports the Streambank Protection projects which will protect those wells.

We look forward to working with you and the State DEP on this in the very near future, and thank you for your consideration of one of Middletown's most valuable resources....the riverfront. You may count on the cooperation of City staff in the Municipal Development Office, Water & Sewer Department and Public Works, to help in any way possible toward the completion of these projects.

Very truly yours,

Sebastian J. Garafalo

Sebastian J. Garafalo
Mayor

SJG/is

City of Middletown

MUNICIPAL DEVELOPMENT OFFICE
dbKOVEN DRIVE, MIDDLETOWN, CONNECTICUT 06457
(203) 344-3419

September 29, 1988

Colonel Daniel Wilson, Division Engineer
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Dear Colonel Wilson:

On behalf of the Harbor Improvement Agency, we would like to express the support of the City of Middletown for the Emergency Streambank Protection projects to be undertaken by the Army Corps of Engineers. It was this Agency which brought the urgent need for erosion control in these areas to public attention, and we certainly support any efforts you may make on our behalf where these projects are concerned.

Thank you for your consideration of these endangered areas, and we look forward to seeing your fine work in place scon.

Very truly yours,

Edward J. Dzialo, Jr.
Sebastian Timbro
Co-Chairman
Harbor Improvement Agency

OCT 3 1988

EJD:ST/is

cc: Bob Martin

City of Middletown

MUNICIPAL DEVELOPMENT OFFICE
dba KOVEN DRIVE, MIDDLETOWN, CONNECTICUT 06457
(203) 344-3418

November 20, 1986

Col. Thomas A. Rhen
Division Engineer
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Re: City of Middletown Request for Assistance

Dear Col. Rhen:

Pursuant to a telephone conversation between my staff member, Linda A. Ozga and Robert Martin, Chief of Special Program Section, I am writing on behalf of the City of Middletown to formally request assistance from the Corps of Engineers.

The reason for this request is to address the severe erosion of the river banks along sections of the Connecticut River which over time has caused trees to topple into the river and now even threatens to undermine a public road.

Your prompt attention to this matter will be appreciated.

Very truly yours,

William M. Kuehn, Jr.
Municipal Development Director

WMK/bds

cc: Sebastian J. Garafalo, Mayor
Samuel Gejdenson, U.S. Congressman (Middletown Office)
Edward J. Dzialo, Chairman, Harbor Improvement Agency

UNITED STATES ARMY CORPS OF ENGINEERS

CONTINUING AUTHORITIES PROGRAM

SECTION 14
SINGLE PURPOSE
EMERGENCY STREAMBANK OR SHORELINE PROTECTION WORKS

****

LOCAL COOPERATION AGREEMENT

BETWEEN

THE DEPARTMENT OF THE ARMY

AND

THE STATE OF CONNECTICUT

[FULL NAME OF LOCAL SPONSOR]

FOR CONSTRUCTION OF THE

CONNECTICUT RIVER STREAMBANK EROSION CONTROL PROJECT
MIDDLETOWN, CONNECTICUT

[FULL NAME OF PROJECT]

THIS AGREEMENT, entered into this _____ day of _____, 19____, by and between the DEPARTMENT OF THE ARMY (hereinafter referred to as the "Government"), acting by and through the NEW ENGLAND [LOCATION OF DISTRICT] DIVISION [DISTRICT/DIVISION], U.S. Army Corps of Engineers, and THE STATE OF CONNECTICUT

[LOCAL SPONSOR]
(hereinafter referred to as the "Local Sponsor"), acting by and through COMMISSIONER, DEPARTMENT OF ENVIRONMENTAL PROTECTION.

[TITLE OF PERSON SIGNING THIS AGREEMENT]

WITNESSETH, THAT:

WHEREAS, the authority for the construction of the CONNECTICUT RIVER EMERGENCY STREAMBANK PROTECTION PROJECT

[NAME OF PROJECT]

at MIDDLETOWN, CONNECTICUT

[SPECIFIC LOCATION OF PROJECT]

(hereinafter referred to as the "Project," as defined in Article I.a. of this Agreement) is contained in Section 14 of the Flood Control Act of 1946, as amended, 33 U.S.C. 701r; and

WHEREAS, Section 14 of the Flood Control Act of 1946, as amended, limits the amount the Federal Government may expend on a single project to $500,000; and

WHEREAS, construction of the Project is described in a report entitled DETAILED PROJECT REPORT - EMERGENCY STREAMBANK PROTECTION CONNECTICUT RIVER, MIDDLETOWN, CONNECTICUT,

prepared by NEW ENGLAND DIVISION, dated FEBRUARY 1989, and approved by Chief of Engineering on _____; and,
[DATE]

WHEREAS, Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, specifies the cost-sharing requirements applicable to the Project; and

WHEREAS, Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended, provides that the construction of any water resources project by the Secretary of the Army shall not be commenced until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the project; and,

[ONLY ONE OF THE TWO FOLLOWING "WHEREAS" CLAUSES WILL APPLY; STRIKE THROUGH THE CLAUSE WHICH DOES NOT APPLY]

OPTION 1:

~~WHEREAS, the Project qualifies for a reduction of the maximum non-Federal cost share pursuant to guidelines which implement Section 103(m) of the Water Resources Development Act of 1986, Public Law 99-662, published in 33 C.F.R. sections 241.1 - 241.6, entitled "Flood Control Cost-Sharing Requirements Under the Ability To Pay Provision", and the reduced maximum non-Federal cost share as determined by the Ability to Pay test~~

~~is _____ percent, derived as set out in Exhibit _____ to this Agreement; subject, however, to the cost limitations placed on the Federal Government by Section 14 of the Flood Control Act of 1946, as amended;~~ and

OPTION 2:

WHEREAS, the Project does not qualify for a reduction of the maximum non-Federal cost share pursuant to guidelines which implement Section 103(m) of the Water Resources Development Act of 1986, Public Law 99-662, published in 33 C.F.R. sections 241.1 - 241.6, entitled "Flood Control Cost-Sharing Requirements Under the Ability To Pay Provision"; and

WHEREAS, the Local Sponsor has the authority and capability to furnish the cooperation hereinafter set forth and is willing to participate in cost-sharing and financing in accordance with the terms of this Agreement;

NOW, THEREFORE, the parties agree as follows:

ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

For purposes of this Agreement:

a. The term "Project" shall mean construction of 420 feet of slope protection along the Connecticut River downstream from the Route 66 bridge. The slope protection will consist of precast concrete grid blocks and rip-rap and will protect River Road.

[DESCRIBE THE WORK TO BE UNDERTAKEN PURSUANT TO THIS AGREEMENT IN SUFFICIENT DETAIL AS IS NECESSARY TO AVOID ANY CONFUSION OVER WHAT WORK IS, OR IS NOT INCLUDED; REFERENCE THE PROJECT REPORT, IF APPROPRIATE; IF MORE SPACE IS NEEDED, REFERENCE AND SECURELY ATTACH A SEPARATE SHEET AND HAVE ALL SIGNATORIES INITIAL IT WHEN THEY SIGN.]

b. The term "total project costs" shall mean all costs incurred by the Local Sponsor and the Government directly related to construction of the Project. Such costs shall include, but not necessarily be limited to, costs of applicable engineering and design, costs of preparation of contract plans and specifications, actual construction costs, costs of alterations or relocations of railroad bridges and approaches thereto, supervision and administration costs, costs of construction contract dispute settlements or awards, and the

value of lands, easements and rights-of-way (to the extent that the lands, easements and rights-of-way are not already owned as part of the facility being protected), relocations, and dredged material disposal areas provided for the Project by the Local Sponsor, but shall not include any costs for betterments, operation, repair, maintenance, replacement nor rehabilitation, nor Government costs for planning studies.

c. The term "period of construction" shall mean the time from the advertisement of the first construction contract to the time of acceptance of the Project by the Contracting Officer.

d. The term "Contracting Officer" shall mean the U. S. Army Engineer for the New England [LOCATION] Division [DISTRICT/DIVISION], or his designee.

e. The term "highway" shall mean any highway, thoroughfare, roadway, street, or other public or private road or way.

f. The term "fiscal year" shall mean one fiscal year of the United States Government, unless otherwise specifically indicated. The Government fiscal year begins on October 1 and ends on September 30.

g. The term "functional portion of the Project" shall mean a completed portion of the Project determined by the Contracting Officer to be suitable for tender to the Local Sponsor to operate and maintain in advance of completion of construction of the entire Project.

h. The term "relocations" shall mean alterations, modifications, lowering or raising in place, and/or new construction related to, but not limited to, existing: railroads, highways, bridges, including railroad bridges and approaches thereto and highway bridges, buildings, commercial and gas pipelines, public utilities (such as municipal water and sanitary sewer lines, telephone lines, and storm drains), aerial facilities supported by poles or by other means, which, if damaged, would not normally have an adverse effect on the project structure, cemeteries, and other facilities, structures, and improvements determined by the Government to be necessary for the construction, operation and maintenance of the Project.

i. The term "involuntary acquisition" shall mean the acquisition of lands, easements, and rights-of-way by eminent domain.

j. Words which appear between brackets, whether they

appear between or within lines of text, do not constitute a part of this Agreement. They are intended only as instructions regarding the proper completion of this Agreement.

ARTICLE II - OBLIGATIONS OF THE PARTIES

a. The Government, subject to and using funds provided by the Local Sponsor and appropriated by the Congress, shall expeditiously construct the Project (including alterations or relocations of railroad bridges and approaches thereto), applying those procedures usually followed or applied in Federal projects, pursuant to Federal laws, regulations, and policies. The Local Sponsor shall be afforded the opportunity to review and comment on all contracts, including relevant plans and specifications, prior to the issuance of invitations for bids. The Local Sponsor also shall be afforded the opportunity to review and comment on all modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. The Government will consider the comments of the Local Sponsor, but contract awards, modifications, or change orders, and performance of all work on the Project (whether the work is performed under contract or by Government personnel) shall be exclusively within the control of the Government.

b. When the Government determines that the Project, or a functional portion of the Project, is complete, the Government shall turn the completed Project or functional portion over to the Local Sponsor, which shall accept the Project or functional portion and be solely responsible for operating, repairing, maintaining, replacing, and rehabilitating the Project or functional portion in accordance with Article VIII hereof.

c. As further specified in Article VI hereof, the Local Sponsor shall provide, during the period of construction, a cash contribution of 5 percent of total project costs.

d. As further specified in Article III hereof, the Local Sponsor shall provide all lands, easements, rights-of-way, and dredged material disposal areas, and perform all relocations (excluding railroad bridges and approaches thereto) determined by the Government to be necessary for construction of the Project. To the extent that any of the lands, easements, or rights-of-way provided under this paragraph are already owned as part of the facility or structure being protected, the value of such interests shall not be included in total project costs nor credited towards the Local Sponsor's contribution required under this Article. At its sole discretion, the Government may perform relocations in cases where it appears that the Local Sponsor's contributions will exceed the maximum non-Federal

cost share set out in Article VI.f., subject to the Federal limitation set out in Article II.f.

e. If the value of the allowable contributions provided under paragraphs c. and d. of this Article represents less than 25 percent of total project costs, the Local Sponsor shall provide during the period of construction an additional cash contribution in the amount necessary to make its total contribution equal to 25 percent of total project costs.

[ONLY ONE OF THE TWO FOLLOWING SUBPARAGRAPHS WILL APPLY; STRIKE THROUGH THE ONE WHICH DOES NOT APPLY]

OPTION 1:

~~f. The Government's participation in the Project, including all planning studies costs, has a statutory limitation of $500,000. The Local Sponsor shall be responsible for all costs in excess of $500,000, notwithstanding that the Project qualifies for a reduction of the maximum non-Federal cost share under the Ability to Pay Test.~~

OPTION 2:

f. The Government's participation in the Project, including all planning studies costs, has a statutory limitation of $500,000. The Local Sponsor shall be responsible for all costs in excess of $500,000.

g. The Local Sponsor shall comply with all items of local cooperation set out in the aforementioned report entitled DETAILED PROJECT REPORT - EMERGENCY STREAMBANK PROTECTION, CONNECTICUT RIVER, MIDDLETOWN, CONNECTICUT, prepared by NEW ENGLAND DIVISION dated FEBRUARY 1989, and approved by Chief of Engineering on _____. [DATE]

h. No Federal funds may be used to meet the Local Sponsor's share of project costs under this Agreement unless the expenditure of such funds is expressly authorized by statute as verified in writing by the granting agency.

ARTICLE III - LANDS, FACILITIES, AND PUBLIC LAW 91-646 RELOCATION ASSISTANCE

a. The Local Sponsor shall furnish to the Government all lands, easements, and rights-of-way, including suitable borrow and dredged material disposal areas, as may be determined by the Government to be necessary for construction, operation,

and maintenance of the Project, and shall furnish to the Government evidence supporting the Local Sponsor's legal authority to grant rights-of-entry to such lands. The necessary lands, easements, and rights-of-way shall be provided prior to the advertisement of any construction contract.

b. The Local Sponsor shall provide or pay to the Government the full cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged material disposal areas necessary for construction of the Project.

c. Upon notification from the Government, the Local Sponsor shall accomplish, or arrange for accomplishment at no cost to the Government, all relocations (excluding railroad bridges and approaches thereto) determined by the Government to be necessary for construction of the Project.

d. The Local Sponsor shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended, in acquiring lands, easements, and rights-of-way for construction and subsequent operation and maintenance of the Project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

ARTICLE IV - VALUE OF LANDS AND FACILITIES

a. The value of the lands, easements, and rights-of-way to be included in total project costs and credited towards the Local Sponsor's share of total project costs will be determined in accordance with the following procedures:

1. If the lands, easements, or rights-of-way are owned by the Local Sponsor as of the date the first construction contract for the Project is awarded, the credit shall be the fair market value of the interest at the time of such award. The fair market value shall be determined by an appraisal, to be obtained by the Local Sponsor, which has been prepared by a qualified appraiser who is acceptable to both the Local Sponsor and the Government. The appraisal shall be reviewed and approved by the Government.

2. If the lands, easements, or rights-of-way are acquired by the Local Sponsor after the date of award of the

first construction contract for the Project, the credit shall be the fair market value of the interest at the time such interest is acquired. The fair market value shall be determined as specified in Article IV.a.1. of this Agreement. If the Local Sponsor pays an amount in excess of the appraised fair market value, it may be entitled to a credit for the purchase price paid, if the Local Sponsor has secured prior written approval from the Government of the purchase price.

3. Credit for lands, easements, and rights-of-way in the case of involuntary acquisitions which occur within a one-year period preceding the date this Agreement is signed or which occur after the date this Agreement is signed will be based on court awards, or on stipulated settlements that have received prior Government approval.

4. If the Local Sponsor acquires more lands, easements, or rights-of-way than are necessary for project purposes, as determined by the Government, then only the value of such portions of those acquisitions as are necessary for project purposes shall be included in total project costs and credited to the Local Sponsor's share.

5. For lands, easements, or rights-of-way acquired by the Local Sponsor within a five-year period preceding the date this Agreement is signed, or any time after this Agreement is signed, credits provided under this paragraph will also include the actual incidental costs of acquiring the interest, e.g., closing and title costs, appraisal costs, survey costs, attorney's fees, plat maps, and mapping costs, as well as the actual amounts expended for payment of any Public Law 91-646 relocation assistance benefits provided in accordance with the obligations under this Agreement.

b. The costs of relocations or modifications of utilities or facilities incurred by the Local Sponsor which will be included in total project costs and credited towards the Local Sponsor's share of total project costs shall be that portion of the actual costs as set forth below:

1. Highways and Highway Bridges: Only that portion of the cost as would be necessary to construct substitute bridges and highways to the design standard that the State of CONNECTICUT would use in constructing a new bridge or highway under similar conditions of geography and traffic loads.

2. Utilities and Facilities (including Railroads): Actual relocation costs less depreciation, less salvage value, plus the cost of removal, less the cost of betterments. With respect to betterments, new materials shall

not be used in any relocation or alteration if materials of value and usability equal to those in the existing facility are available or can be obtained as salvage from the existing facility or otherwise, unless the provision of new material is more economical. If, despite the availability of used material, new material is used, where the use of such new material represents an additional cost, such cost will not be included in total project costs, nor credited towards the Local Sponsor's share.

ARTICLE V - CONSTRUCTION PHASING AND MANAGEMENT

a. To provide for consistent and effective communication between the Local Sponsor and the Government during the period of construction, the Local Sponsor and the Government shall appoint representatives to coordinate on scheduling, plans, specifications, modifications, contract costs, and other matters relating to construction of the Project. The Local Sponsor will be informed of any changes in cost estimates.

b. The representatives appointed above shall meet as necessary during the period of construction and shall make such recommendations as they deem warranted to the Contracting Officer.

c. The Contracting Officer shall consider the recommendations of the representatives in all matters relating to the Project, but the Contracting Officer, having ultimate responsibility for construction of the Project, has complete discretion to accept, reject, or modify the recommendations.

ARTICLE VI - METHOD OF PAYMENT

a. The Local Sponsor shall provide, during the period of construction, the amounts required under Articles II.c., II.e., and II.f. of this Agreement. Total project costs are presently estimated to be $ 309,000. . In order to meet its share, the Local Sponsor must provide a cash contribution presently estimated to be $ 75,300. .

b. The required cash contribution shall be provided as follows: [At least 30] calendar days prior to the award of the first construction contract, the Government shall notify the Local Sponsor of the Local Sponsor's estimated share of project costs, including its share of costs attributable to the Project incurred prior to the initiation of construction. Within [half the above number] calendar days thereafter, the Local Sponsor shall provide the Government the full amount of the required contribution by delivering a check payable to "FAO, USAED, _____" to the Contracting Officer representing the

Government. In the event that total project costs are expected to exceed the estimate given at the outset of construction, the Government shall immediately notify the Local Sponsor of the additional contribution the Local Sponsor will be required to make to meet its share of the revised estimate. Within [No more than 45] calendar days thereafter, the Local Sponsor shall provide the Government the full amount of the additional required contribution.

c. The Government will draw on the [funds OR escrow account OR letter of credit] _____ provided by the Local Sponsor such sums as it deems necessary to cover contractual and in-house fiscal obligations attributable to the Project as they are incurred, as well as costs incurred by the Government prior to the initiation of construction.

d. Upon completion of the Project and resolution of all relevant contract claims and appeals, the Government shall compute the total project costs and tender to the Local Sponsor a final accounting of the Local Sponsor's share of total project costs. In the event the total contribution by the Local Sponsor is less than its minimum required share of total project costs at the time of the final accounting, the Local Sponsor shall, no later than 90 calendar days after receipt of written notice, make a cash payment to the Government of whatever sum is required to meet the Local Sponsor's minimum required share of total project costs.

e. In the event the Local Sponsor has made cash contributions in excess of 5 percent of total project costs which result in the Local Sponsor having provided more than its required share of total project costs, the Government shall, no later than 90 calendar days after the final accounting is complete, subject to the availability of appropriations for that purpose, and subject to the $500,000.00 Federal limitation set out in Article II.f., return said excess to the Local Sponsor; however, the Local Sponsor shall not be entitled to any refund of the 5 percent cash contribution required pursuant to Article II.c. of this Agreement.

f. If the Local Sponsor's total contribution under this Agreement (including allowable credits for lands, easements, rights-of-way, relocations, and dredged material disposal areas provided for the Project by the Local Sponsor) exceeds [EITHER 50, IF NO QUALIFICATION UNDER ABILITY TO PAY TEST, OR THE APPROPRIATE ABILITY TO PAY PERCENTAGE, IF THE PROJECT QUALIFIES] ____ percent of total project costs, the Government shall, subject to the availability of appropriations for that purpose, and subject to the $500,000.00 Federal limitation set out in Article II.f., refund the excess to the Local Sponsor no later than 90 calendar days after the final accounting is complete.

ARTICLE VII - DISPUTES

Before any party to this Agreement may bring suit in any court concerning an issue relating to this Agreement, such party must first seek in good faith to resolve the issue through negotiation or other forms of nonbinding alternative dispute resolution mutually acceptable to the parties.

ARTICLE VIII - OPERATION, MAINTENANCE, REPLACEMENT, AND REHABILITATION

a. After the Government has turned the completed Project, or functional portion of the Project, over to the Local Sponsor, the Local Sponsor shall operate, repair, maintain, replace, and rehabilitate the completed Project, or functional portion of the Project, in accordance with regulations or directions prescribed by the Government.

b. The Local Sponsor hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon land which it owns or controls for access to the Project for the purpose of inspection, and, if necessary, for the purpose of completing, operating, repairing, maintaining, replacing, or rehabilitating the Project. If an inspection shows that the Local Sponsor for any reason is failing to fulfill its obligations under this Agreement without receiving prior written approval from the Government, the Government will send a written notice to the Local Sponsor. If the Local Sponsor persists in such failure for 30 calendar days after receipt of the notice, then the Government shall have a right to enter, at reasonable times and in a reasonable manner, upon lands the Local Sponsor owns or controls for access to the Project for the purpose of completing, operating, repairing, maintaining, replacing, or rehabilitating the Project. No completion, operation, repair, maintenance, replacement, or rehabilitation by the Government shall operate to relieve the Local Sponsor of responsibility to meet its obligations as set forth in this Agreement, or to preclude the Government from pursuing any other remedy at law or equity to assure faithful performance pursuant to this Agreement.

ARTICLE IX - RELEASE OF CLAIMS

The Local Sponsor shall hold and save the Government free from all damages arising from the construction, operation, and maintenance of the Project, except for damages due to the fault or negligence of the Government or its contractors.

ARTICLE X - MAINTENANCE OF RECORDS

The Government and the Local Sponsor shall keep books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement to the extent and in such detail as will properly reflect total project costs. The Government and the Local Sponsor shall maintain such books, records, documents, and other evidence for a minimum of three years after completion of construction of the Project and resolution of all claims arising therefrom, and shall make available at their offices at reasonable times, such books, records, documents, and other evidence for inspection and audit by authorized representatives of the parties to this Agreement.

ARTICLE XI - FEDERAL AND STATE LAWS

In acting under its rights and obligations hereunder, the Local Sponsor agrees to comply with all applicable Federal and State laws and regulations, including section 601 of Title VI of the Civil Rights Act of 1964, Public Law 88-352, and Department of Defense Directive 5500.II issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations, as well as Army Regulation 600-7, entitled "Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

ARTICLE XII - RELATIONSHIP OF PARTIES

The parties to this Agreement act in an independent capacity in the performance of their respective functions under this Agreement, and neither party is to be considered the officer, agent, or employee of the other.

ARTICLE XIII - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

ARTICLE XIV - COVENANT AGAINST CONTINGENT FEES

The Local Sponsor warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Local Sponsor for the purpose of securing business. For breach or violation of this warranty,

the Government shall have the right to annul this Agreement without liability, or, in its discretion, to add to the Agreement or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE XV - TERMINATION OR SUSPENSION

a. If at any time the Local Sponsor fails to make the payments required under this Agreement, the Secretary of the Army shall terminate or suspend work on the Project until the Local Sponsor is no longer in arrears, unless the Secretary of the Army determines that continuation of work on the Project is in the interest of the United States or is necessary in order to satisfy agreements with any other non-Federal interests in connection with the Project. Any delinquent payment shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13-week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3-month period if the period of delinquency exceeds 3 months.

b. If the Government fails to receive annual appropriations for the Project in amounts sufficient to meet project expenditures for the then-current or upcoming fiscal year, the Government shall so notify the Local Sponsor. After 60 calendar days either party may elect without penalty to terminate this Agreement or to defer future performance hereunder; however, deferral of future performance under this Agreement shall not affect existing obligations or relieve the parties of liability for any obligation previously incurred. In the event that either party elects to defer future performance under this Agreement, such deferral shall remain in effect until such time as the Government receives sufficient appropriations or either party elects to terminate this Agreement. In the event that either party elects to terminate this Agreement, the parties shall conclude their activities relating to the Project and proceed to a final accounting in accordance with Article VI.

ARTICLE XVI - NOTICES

a. All notices, requests, demands, and other communications required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing

and delivered personally, given by prepaid telegram, or mailed by first-class (postage-prepaid), registered, or certified mail, as follows:

If to the Local Sponsor:

Mr. Alphonse J. Letendre
State of Connecticut
Department of Environmental Protection
165 Capitol Avenue
Hartford, Connecticut 06106

;

[FULL ADDRESS]

If to the Government:

Colonel, Daniel M. Wilson
Division Engineer
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

;

[FULL ADDRESS]

b. A party may change the address to which such communications are to be directed by giving written notice to the other in the manner provided in this Article.

c. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at such time as it is personally delivered or seven days after it is mailed, as the case may be.

ARTICLE XVII - CONFIDENTIALITY

To the extent permitted by the law governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XVIII - APPROVAL OF AGREEMENT

The U.S. Army Engineer for the NEW ENGLAND [LOCATION] DIVISION [DISTRICT/DIVISION], is authorized to execute this Agreement on behalf of the

Government, provided no modification is made to this Agreement other than completion in accordance with the bracketed instructions. If any such modification is made, this Agreement shall be subject to the written approval of the Assistant Secretary of the Army (Civil Works) and is not binding on the Government until so approved.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

THE DEPARTMENT OF THE ARMY

BY: _____
[SIGNATURE]

_____
[TYPED NAME]

ASSISTANT SECRETARY OF ARMY
(Civil Works)

[SELECT ONE]
District/Division
Engineer

DATE: _____

THE LOCAL SPONSOR

BY: _____
[SIGNATURE]

_____
[TYPED NAME]

COMMISSIONER, DEPARTMENT
of ENVIRONMENTAL PROTECTION

[TITLE IN FULL]

DATE: _____

EXHIBIT A

CERTIFICATE OF AUTHORITY

I, _____ , do hereby certify that I am
[TYPED OR PRINTED NAME]
the _____ of _____ and that the
[TITLE] [LOCAL SPONSOR]
_____ is a legally constituted public body with full
[LOCAL SPONSOR]
authority and capability to perform the terms of the Agreement between the Department of the Army and _____
[LOCAL
_____ in connection with _____, and
SPONSOR] [NAME OF PROJECT]
to pay damages, if necessary, in the event of the failure to perform, in accordance with Section 221 of Public Law 91-611 and that the person(s) who has/have executed the Agreement on behalf of the _____ has/have acted within statutory
[LOCAL SPONSOR] authority.
IN WITNESS WHEREOF, I have made and executed this Certificate of Authority this _____ day of _____, 19___.

[PLACE SEAL AND/OR ACKNOWLEDGMENT(S) BELOW, IF NECESSARY FOR EXECUTION OF THIS DOCUMENT--THE DEPARTMENT OF THE ARMY DOES NOT REQUIRE EITHER.]

_____
[SIGNATURE]

_____
[TYPED NAME]

_____
_____
_____
_____
[TITLE IN FULL]